

**SOME PROBLEMS IN CITY  
SCHOOL ADMINISTRATION**  
**GEORGE D. STRAYER**

**SCHOOL EFFICIENCY SERIES**  
**PAUL H. HANUS**



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THE School Efficiency Series comprises thirteen volumes by as many educational experts on Elementary School and Kindergarten, High School, and Vocational Instruction, Courses of Study, Organization, Management and Supervision. The Series consists of monographs based on the report of Professor Hanus and his associates on the schools of New York City, but the controlling ideas are applicable as well in one public school system as in another.

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Some Problems in  
City School Administration





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*Edited by* PAUL H. HANUS

# Some Problems in City School Administration

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## EDITOR'S PREFACE

THE School Efficiency Series was intended originally to include only the volumes containing the report of my associates and myself on the New York City School Inquiry. Since that inquiry (survey) was undertaken a number of school surveys of smaller cities have been made. Most of the reports of these surveys seem to me to have more than a temporary value; and most of them have not been published as yet, in book form. I accordingly suggested to the World Book Company that the School Efficiency Series be extended to include at least some of these reports. This suggestion found favor with the World Book Company, and the report on the Portland (Oregon) survey was published as a volume of this series about a year ago.

When the report on the Butte survey appeared, I suggested to Dr. Strayer that if agreeable to him and his associates I would like to publish it as a volume of the School Efficiency Series because, like the New York and Portland reports, it embodies a record of facts concerning a particular school system which it is impossible otherwise to obtain. Also like those other reports, it embodies methods of studying schools and school systems and discusses principles of procedure in school activities that are universally applicable—just such concrete facts, methods, and principles as constitute the most valuable material we can obtain for critical analysis and evaluation by all students of education and particularly by superintendents of schools and other school officers. Dr. Strayer assented to my suggestion, and I now take pleasure in presenting his report on the Butte survey as the latest volume of the present series.

Since I had no part in the Butte School Survey nor in the preparation of the report on that survey, I cannot claim any responsibility for either; but I am glad to express my hearty concurrence with most of the conclusions and recommendations of the present volume. Nevertheless, on one significant point it seems to be important that I should state my own views, even if, in doing so, I must express fundamental disagreement with Dr. Strayer and some of his associates.

On page 156 reference is made to the use of the Hillegas Scale for measuring compositions written by elementary school children; and the statement is made that this scale consists of ten compositions—seven of which were selected from a large number of compositions written by young people and three of which were artificially constructed by adults to secure compositions of zero or nearly zero value. It should be noted that of the seven compositions in the Hillegas Scale actually written by young people, five were written by high-school children and two were written by college freshmen. Further, the Hillegas Scale is composed of compositions of different kinds. One of the fundamental requirements of scientific measurement is that the thing to be measured should be measured by a portion of the same kind of thing; and from what has been said it is clear that the Hillegas Scale does not fulfill this condition.

Nevertheless, Dr. Strayer and others have used the scale to advantage. The point I wish to make in regard to this scale is that no one ought to use it without having in mind its defects and limitations. The Hillegas Scale, as a pioneer, has served a useful purpose; but for the reason given above it is clear that we need a better scale.

PAUL H. HANUS.

HARVARD UNIVERSITY.



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Some Problems in City School  
Administration



# SOME PROBLEMS IN CITY SCHOOL ADMINISTRATION

## INTRODUCTION

THE survey of the Butte public school system was undertaken upon the invitation of the Board of School Trustees and the Superintendent of Schools. In extending their invitation to the director of the Survey, the Board agreed that he should choose his associates from among those whom he considered best qualified for the work in hand, and assured him that the report would be published as written, without amendment or editorial change. The time allowed for the work was four weeks, and it was agreed that the cost to the Board of School Trustees for the salaries and expenses of the Survey commission should not exceed four thousand dollars.

At their first conference concerning the work to be done, the members of the commission agreed that it was the purpose of the Survey to acquaint the Board of School Trustees and the citizens of Butte with the conditions as they exist in the public school system, with respect to the school plant and its equipment, the methods of administration and supervision of the schools, the instruction and courses of study, the training, tenure, and present efficiency of the teaching corps, and the classification, progress, and achievements of children in the school system, together with such recommendations as might seem to them to be justified in the light of the facts which they might be able to collect, or observations which they might make. The members of the commission agreed that they would seek to place clearly before those who might read their report the achievements

of the school system, or, in other words, its present strength, the needs of the school system as determined by whatever inadequacy might be found to exist, and the policies which, in their judgment, should furnish a program for future development.

In the actual conduct of the Survey, emphasis has been placed throughout upon the possible service which should be rendered by the school system to all members of the community. Since the school system, as at present organized, deals almost exclusively with the education of children between the ages of six and twenty years of age, the greater part of this report will be found to be devoted to a consideration of the education now offered to these children, together with such recommendations as seem to the members of the commission to promise improvement in the conditions under which this education is offered or in the results which may be secured. The report has not neglected, however, to consider the problem of the education of children under six years of age, and the possible wider use of the school plant for the education of those who are beyond compulsory school age and not now in attendance in the school system.

The general plan for the work of the Survey commission had been thoroughly discussed and outlined by the time its members reached Butte. As soon as possible after reaching the city, conferences were held with the Superintendent of Schools, with the Board of School Trustees, and all of the teachers of the school system. The members of the commission profited largely from these meetings. They have felt throughout their work that their understanding of the local school situation depended in large measure upon the free and frank discussion which they were able to enjoy with those interested in the welfare of the school system. In the conference with teachers, the position of the Survey commission with respect to individual members of the teaching corps was made clear. Some of the teachers had felt before that meeting that



the Survey was intended to report upon the qualifications of individual teachers, in order that the Board of School Trustees might be informed, and might, upon recommendation of the commission, either rehire or dismiss individual teachers from the school system. In this report recommendations are made with respect to the further training of teachers, and the qualifications for those who may later enter the school system, but the commission have been careful not to express any opinion concerning any individual teacher or other employee of the Board of School Trustees. This position seems to them to be fundamental in all survey work done by specialists called in from outside the regular administrative or supervisory staff.

The commission endeavored from the first to make it clear that they would be willing to discuss the needs of the school system with any representative body in the city who might care to invite them to meet for a discussion of these problems. During the course of the Survey they accepted invitations to attend meetings of the Silver Bow Trades and Labor Council, of the supervisors and principals of the public school system, of the teachers' union, of the city parents-teachers' association, of the Woman's Club, and of the Chamber of Commerce. Upon the suggestion of some of the teachers who were interested in the tests given to children, a meeting of the whole teaching corps was held in order to acquaint teachers with the nature of the tests given and to enable them to understand the methods used in scoring results. Another meeting of the teaching corps by grade groups was held for the discussion of problems peculiar to the different groups of teachers.

As has already been suggested, the purpose of the Survey had to do mainly with suggesting possibilities for improving the opportunities of the children in the public schools. To accomplish this end, all the members of the commission spent the first week during which they were at work in Butte upon the Survey, in visiting the classrooms. All the schools in Butte, except the rural schools,

were visited, and every teacher's work was observed for a whole recitation or for such part of a recitation as was necessary to make clear to the observer the method of instruction employed by the teacher and the results she was securing from the pupils. In connection with these visits short conferences were held with teachers, and longer conferences, lasting from one to three hours, were held with the principal of each school. During the whole time devoted to the Survey, each member of the commission visited at least seven schools, while one member of the commission visited twelve.

After the careful observation of the quality of teaching had been completed, a systematic attempt was made to discover the quality of work done by pupils by giving to as many children as possible tests which had been used in other school systems. Specimens of handwriting were collected from all the children. Tests in spelling, arithmetic, and English composition were given in at least ten schools and in as many grades as time permitted.

Such data as were available concerning the work of the school system, in the form of courses of study, textbooks used, rules and regulations, and records to be found in the offices of the Superintendent of Schools and the School Clerk, were carefully studied. The courses of study were made the subject of several conferences by all the members of the commission. The forms in the Superintendent's office, upon which were recorded the qualifications of teachers and their efficiency as reported by the principals of schools, were carefully read.

In order to supplement data available in the Superintendent's office, and in order to have a basis in fact for the judgments which the members of the commission felt called upon to render, special blanks were prepared and data were secured with reference to the training, experience, tenure, and salaries of teachers, the number of children per teacher in the school system, the ages of children in each grade of each school, the number of days of attend-

ance for all of the children in two schools, the rate of promotion and non-promotion, together with the subjects in which pupils failed, by grades.

As a result of a month's work, along the lines indicated above, the Survey commission herewith present to the Board of School Trustees their report on conditions and needs, together with a constructive program for the future development of the school system of Butte. They cannot, of course, hope that all their recommendations will be at once put into effect. Some of the recommendations clearly look to the future. It is, however, entirely possible for the Board of Trustees, with the support of the people of this school district, to carry all the recommendations into effect within the next four or five years. Should this be done, the commission feel that a very great improvement in the school system of Butte would result,—an improvement which would do much to advance the best interests of the citizenship of the city.

In presenting this report to the Board of School Trustees and to the citizens of Butte, the members of the commission wish to express their appreciation of the uniform courtesy and kindness which has been extended to them by the members of the Board of School Trustees, the Superintendent of Schools, the supervisory corps, and the teaching staff, and by those citizens of Butte with whom it has been their good fortune to come in contact.



PART I

The Administrative Problem



## CHAPTER I

### THE ADMINISTRATION OF THE SCHOOLS

#### (1) THE LEGAL BASIS FOR THE SCHOOLS

**T**HE schools of Butte are organized in pursuance of the constitution of Montana (Art. XI, Sec. 1), which requires that the legislative assembly shall "establish and maintain a general, uniform, and thorough system of public, free common schools," by means of which a free school shall be organized and maintained in each school district in the state.

#### STATE CONTROL OF SCHOOLS

In pursuance of this mandate of the constitution of the state, the legislature has enacted a detailed School Code, larger and longer than this report of the Survey commission, and in which regulations for the organization of school districts, the election of school officers, the maintenance of schools, the certification and appointment of teachers, the selection of textbooks, the attendance of children, the erection of school buildings, and many other matters relating to the administration and supervision of schools, are fully set forth. Instead of leaving the maintenance of schools to community option, their maintenance has been required; instead of leaving the levying of taxes to the whims of town or city councils, the Boards of School Trustees have been given independent power to levy a school tax; instead of leaving attendance optional with communities, the law requires all children between 8 and 14 to attend school every day the public schools are in session, regulates the labor of children, and requires districts of the first class to appoint truant officers, with police powers, to enforce the law; instead of leaving the length of term and the



kind of teacher employed to communities to determine, the state has required a nine-months term in all first- and second-class districts, and forbidden the payment of school money to any teacher not possessed of a teacher's certificate, as required by law; and, in many other matters, what communities must do is definitely and specifically laid down in the school code of the state.

The courts, too, have uniformly decided that school districts are separate and distinct corporations from municipal corporations with which they may be contiguous or of which they may form a part. Municipal corporations exist for the purposes of local government, and are largely local affairs; school corporations exist for the carrying out of a state purpose, are largely independent of local control, and are under the supervision of a special department of the state government. A school district and a municipality frequently have entirely different boundaries, as, for example, in the case of Butte.

#### SCHOOL DISTRICTS OF THE FIRST CLASS

To carry out the state purpose better, the school districts of the state are classified under the law as districts of the first, second, or third class, and larger independent powers are given to the larger districts. A school district which has a population of 8,000 or over within its boundaries is classified as a school district of the first class, and to this classification Butte belongs. Such are to be governed by a Board of School Trustees of seven members, to be elected by the legal voters of the school district, at the annual April school elections, for three-year terms. The Board, when properly organized, becomes a body corporate and politic, with power to sue and be sued, make contracts, purchase and hold school property, and conduct the schools of the district according to the provisions of the school law of the state. Each such board in a district of the first class has power (School Laws,

Secs. 507-8), also, to establish high schools; to transport children to a central school or schools; to establish night schools; to add any new branches of instruction which they may desire to add; to establish and maintain kindergartens (Sec. 602); to appoint a School Clerk (Sec. 504), to attend to the business affairs of the Board; and to appoint (Sec. 1502) a City Superintendent of Schools, "for not longer than a three-year term," who "shall have supervision of the schools of the district" and who "shall be the executive officer of the board."

#### LARGE POWERS OF THE STATE

Even in districts of the first class the powers of the School Board come from the state and not from the city; its authority to act comes from the state school law; and its limitations are imposed by the state. The state even says what subjects must be taught (Sec. 601); what textbooks must be used in the schools (Secs. 1800-1813); may prescribe the course of study which must be used (Sec. 202, Div. 8); and may even examine the pupils in any school system, to test whether or not they shall be promoted from the elementary schools to the high school (Sec. 106, Div. 4).

These state regulations have been prescribed largely in an effort to protect the schools from the attacks or the neglect of short-sighted communities, the power being given to the state to prevent such communities from defrauding their children out of the educational rights and opportunities which the state has, in its wisdom, decreed that the children of the state shall have.

#### LIMITATIONS OF STATE CONTROL FOR CITY SCHOOL SYSTEMS

State oversight is both the strength and the weakness of the schools. In small districts, especially those of the third class (under 1,000 inhabitants), most of the limita-

tions imposed are very desirable, but in districts of the first class, especially districts having 25,000 or more inhabitants, some of the limitations and requirements of the state must be remitted. The Survey commission is glad to record that the state educational authorities have used the option allowed them and have granted the Butte school district freedom from the uniform state examinations, and permission to frame its own course of study. These were important grants, had they been fully availed of. Instead, the state examinations have merely been replaced by local examinations, almost equally unpedagogical and deadly in their results (see Chapters VI and X); while the permission to frame a local course of study has only in part been availed of (see Chapter VIII).

A district of the first class, and especially such a large district as that of Butte, should also be allowed to use other books than the regular state textbooks, if it should so desire. State oversight and control should never go to the extent of interfering with local initiative and local efficiency. In the matter of textbooks, Butte, for its particular needs, could easily improve on some of the state-adopted textbooks which it must now use; to enforce the use of the state course of study and the state promotional examinations on Butte would be, if a good school system is to be maintained, little short of a calamity. The methods, aims, and purposes of an efficient modern city school system, such as Butte ought to develop for its children, and the methods, aims, and purposes of the state course of study and the state examinations, made out, as these have been, with the needs of untrained teachers in isolated rural schools primarily in mind, are so diametrically opposed that the two are not reconcilable. The results on the schools of Butte, in the past, of this state-type of instruction was brought out fully by the tests which were given by the Survey commission (see Chapter IX), and the changes and reorganizations now needed have been set forth at some length in Chapters VII and VIII.

## (2) THE BOARD AND ITS PROBLEMS

Within the limits prescribed by law the Board of Trustees for School District No. 1 of Silver Bow County, Montana, more commonly known as the Butte school district, have official control of the schools. The title to the school property rests with them, and, as a continuing body, they pass the title on to their successors. They appoint their own executive officers, employ principals and teachers for the schools, determine what schools shall be maintained and what new types of instruction shall be provided, determine the school tax to be levied, and have power to make rules and regulations, not inconsistent with the state law or the rules and regulations of the state board of education, for the government of the schools of the district. Within the limits laid down by the school law of the state the powers of the Board of School Trustees are large,—too large, in fact, for any lay board of school officers to exercise intelligently, unless they obtain and follow as good expert advice as they are able to obtain.

### EXECUTIVE OFFICERS OF THE BOARD

To guide the board in its official actions the law has provided for the appointment, in school districts of the first class, of two executive officers,—a Clerk, and a City Superintendent of Schools. The success of a school system such as that of Butte depends largely upon the intelligence used by the Board in selecting the best possible persons for these offices, and then upon how fully they rely, in their many official acts, on the judgment of the officials selected. Only the best men available for the money the Board can afford to pay should be selected for these positions.

The City Superintendent of Schools, for a city school system the size of Butte, should be the official head of the school system, and much of the policy in the development of the school system should emanate from him. He, more

than anyone else, should be the thinking and constructive leader of the schools. When he is so, the Board should follow his judgment and leadership, and should not superimpose its own judgment, except in matters of large importance. When he is not, the Board should secure a successor who will think, and can lead. In all such matters as the courses of study, the appointment, promotion, transfer, and dismissal of teachers, and the organization of instruction, the Board should act only on the recommendation of the City Superintendent of Schools. In the matter of new school buildings and the repair and reconstruction of old buildings, all plans should be subject to his approval, to insure that good hygienic standards are followed.

While the School Clerk should be intrusted with many business matters, and often with power to act independently in the name of the Board of Trustees, he should, nevertheless, in all such educational matters as the purchase of school supplies, the relations of the Clerk's office to the teachers and the schools, or the maintenance of efficiency in the janitor service, act in harmony with the wishes of the City Superintendent of Schools. In other words, the City Superintendent of Schools, as the chief executive officer of the Board of School Trustees, should have official oversight and coördinating authority over the office of the School Clerk, as well as over all other employees of the Board of School Trustees. If he is a man of good judgment and good sense he will allow large independence and use his authority but seldom, but the fact that such coördinating authority rests with him will do much to promote efficiency and secure proper relationships within the school system. The chart on the following page shows the relationships which should exist.

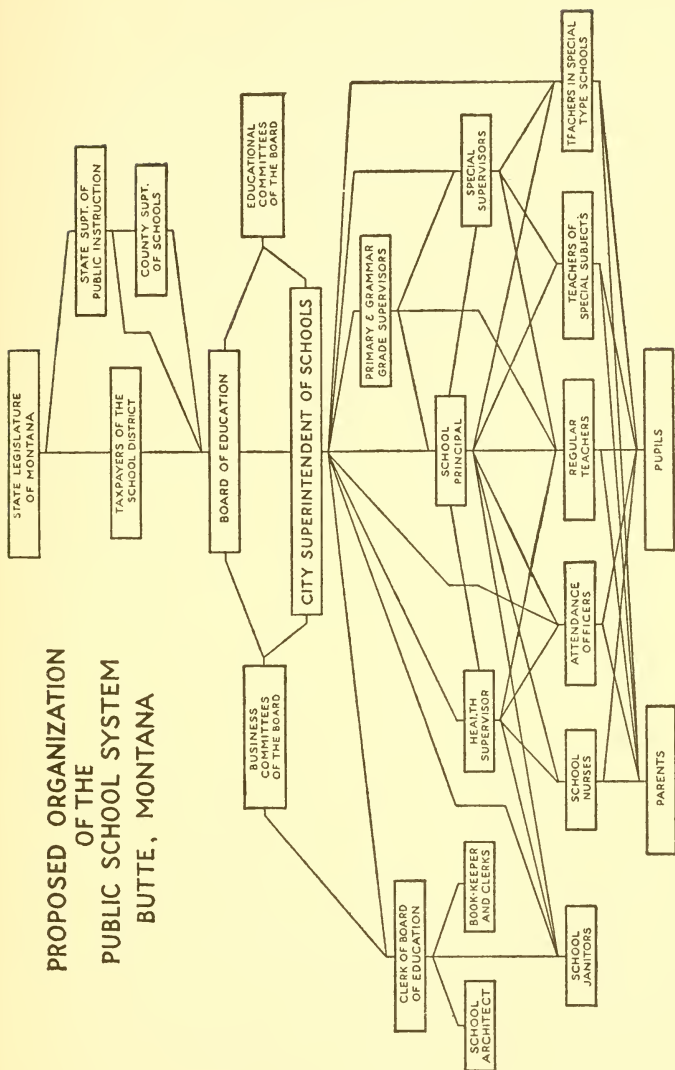


FIG. 1. PROPER RELATIONSHIPS IN ORGANIZATION OF SCHOOL SYSTEM



THE PROPER OFFICIAL RELATION BETWEEN THE BOARD AND  
THE SUPERINTENDENT

So long as the Board of Trustees has confidence in the ability and good judgment of the Superintendent of Schools, he should be supported in his efforts to improve and advance the interests of the schools; when the Board loses this confidence they should replace him by someone in whose ability and good judgment they have confidence. They should not make the common mistake of attempting to assume authority in educational matters themselves, concerning which they cannot act intelligently, nor should they permit the Superintendent of Schools to evade his proper responsibility by putting it off upon them. Book agents, supply agents, applicants for teachers' positions, disgruntled teachers and principals, and all others seeking favors in the school department, should at once be referred to the Superintendent of Schools, with the simple statement that the Board makes it a rule to take no action in such matters except upon his recommendation. When once this is generally understood by the community, the Board members will be saved the waste of much valuable time, and the efficiency of the educational service will be greatly improved. The Superintendent will naturally make some mistakes, but a much smaller number than will the members of the Board of School Trustees. One important measure of the efficiency and capacity of a Superintendent of Schools is his willingness and his ability to assume authority and to carry large responsibilities, and, conversely, one important measure of the intelligence and educational insight of a Board of School Trustees for a city school system is the degree to which they refer educational matters to the Superintendent and intrust him to act for them, and then stand firmly behind him when he acts.

## THE BOARD'S PROPER FUNCTION

This does not mean that the Board of School Trustees will have nothing left to do. On the contrary, there will still be plenty left for them to manage. It simply means that in those matters which are matters of expert judgment, and which no board of laymen is competent to decide, they ought to act only on the recommendation of the educational expert they employ, and ought to trust. It is a sheer waste of public funds to pay \$4,000 for an educational expert, and then disregard his advice and judgment. In all matters such as the hygienic aspects of school-house construction, the outlining of courses of study, the selection of text and supplemental books, passing on the competency of instruction or the efficiency of the service in the school department,—matters which no board of laymen is competent to pass intelligently upon,—action should be based only on the recommendation of the expert educational officer of the Board.

This leaves the Board free to attend to the main business which they are elected to handle, and frees them from the hundreds of petty annoyances incident to the personal pulls and influences which beset any lay school board which attempts to exercise expert functions. The large problems which a Board of School Trustees must handle are the selection of expert advisers and assistants, upon which great care should be exercised; the selection of school sites, always with future needs in mind; the erection of school buildings, to see that they meet good standards and are properly built; the larger problems of finance, present and future; the determination of the annual budget; the approval of expenses incurred; the final decision as to proposed expansions and developments of the public educational system under their control; and the representation of the needs of the school system before the people of the community, and, if necessary, before the legislature of the state. These larger needs are far more important and



far more vital than the smaller and more personal details of school administration to which Boards of School Trustees too frequently devote the larger part of their energy and thinking,—often to the detriment of the schools under their control.

#### FUNDAMENTAL ADMINISTRATIVE PRINCIPLES

By way of summary it may be stated that the chief function of a Board of School Trustees is to govern, rather than minutely to supervise or direct; to watch the larger problems of its work, and to trust the smaller ones to the experts it employs; and to keep themselves free from the personal influences and personal and party pulls which so constantly surround them, by placing all personal matters in the hands of an expert who knows what ought to be done, and who has the courage to stand for fundamental educational principles and policies. The school business of Butte is an important part of this community's efforts at self-government and self-improvement, and the purpose for which the schools were created and are maintained is the proper education of the school population of the community. They exist, in no sense of the word, to afford positions for teachers or contracts for individuals. Positions and contracts are purely incidental and subordinate and should be kept so, in order that the best possible education of the children, for whom the schools exist, may be carried on under the best conditions that are possible.

## CHAPTER II

### THE TEACHING CORPS

#### (I) SELECTION AND TRAINING OF TEACHERS

DATA with respect to high-school training and normal-school work before beginning teaching in Butte, professional training since entering the service in the city system, and experience in years in Butte and elsewhere, were collected on a blank furnished to all teachers, principals, and supervisory officers in the school system.<sup>1</sup> The results are given in Table I, on page 22.

#### THE PREPARATION FOR TEACHING OF THE PRESENT CORPS

Some of the more important facts shown by the data collected are presented briefly below:

1. Of 181 elementary-school teachers who filled out the blank, 93 took their high-school training in Butte, 14 in other cities in Montana, and 74 outside the state of Montana.

2. Eighty-seven of these elementary teachers had no professional training before beginning to teach in Butte; 41 had some professional training, varying from 4 weeks to 2 years, in Montana; while 53 had some professional training, varying from 4 weeks to 2 years, outside the state of Montana. *Of the whole number of elementary-school teachers reporting (181), only 22 had two years' normal-school or other professional training beyond their high-school course before beginning to teach in Butte.*

3. Of the elementary-school principals, 6 out of 16 had two years of normal-school or other professional training, beyond the high-school course, before beginning to

<sup>1</sup> For form of blank, see Appendix B.

TABLE I

EDUCATION, PROFESSIONAL TRAINING, AND TEACHING EXPERIENCE OF  
PRINCIPALS, SUPERVISORS, SPECIAL TEACHERS, AND TEACHERS IN  
ELEMENTARY SCHOOLS

	Principals	Supervisors and Special Teachers	Elementary Teachers	Total
High school education obtained—				
1. In Butte.....	4	0	93	97
2. In other Montana high schools.....	1	1	14	16
3. Elsewhere.....	11	8	74	93
Having no college training beyond high school	9	5	161	175
Normal training before entering service in Butte—				
1. None.....	3	1	87	91
2. In Montana.....	3	..	41	44
3. Elsewhere.....	10	8	53	71
Training since entering Butte—				
1. None.....	9	3	147	159
2. Normal school.....	4	5	15	24
3. College or university.....	3	3	19	25
Years of Teaching Experience—				
1. In Butte—				
0 to 4 years.....	0	3	71	74
5 to 9 years.....	2	4	54	60
10 to 14 years.....	12	2	19	33
2. Elsewhere—				
0 to 4 years.....	7	4	116	127
5 to 9 years.....	3	1	36	40
10 or more years.....	0	2	11	13
3. Total years' experience—				
0 to 4 years.....	..	2	17	19
4 to 9 years.....	1	2	61	64
10 to 14 years.....	1	1	47	49
15 to 19 years.....	10	2	25	37
20 or more years.....	4	2	21	27

teach in Butte. Of the special teachers and supervisors, 8 had some professional training before beginning to teach in Butte, and 6 had 2 years or more of professional training before entering upon service in the city school system.

4. The high-school teachers were, as required by a regulation of the Board of Trustees, graduates of approved colleges or universities, but many of them had no specific professional training for their work. It was not possible on the form which was filled out to discover, with respect to high-school teachers, the exact nature or extent of their professional training.

5. One hundred and forty-seven out of 181 elementary-school teachers reporting have had no professional training since entering the service in Butte; 15 have had some normal-school training, usually a summer school; and 19 have attended summer sessions in connection with colleges or universities.

6. Of the 16 elementary-school principals, 9 have had no professional training since entering the service in Butte, while 7 have attended summer schools in connection with normal schools or universities, since entering their period of service.

7. Out of 35 high-school teachers reporting, 12 have attended summer sessions since entering upon their work in the Butte high school.

8. Of all of the teachers in the city school system, 97 have taught in the Butte schools from 1 to 4 years, 70 from 5 to 9 years, 40 from 10 to 14 years, and 36 for more than 15 years. One hundred and fifty-one of these teachers have taught from 1 to 4 years outside of Butte, 46 have taught elsewhere from 5 to 9 years, and 15 have had experience of more than 10 years outside of the Butte school system. (These data include the high-school teachers.)

#### CONCLUSIONS FROM THE DATA AS TO PREPARATION

Any careful consideration of these data, especially when taken in connection with the discussion of the quality of instruction (Chapter VII), and the efficiency of the school system as measured by the achievements of school children (Chapter IX), leads inevitably to the conclusion that, as

a body, the Butte teachers lacked adequate professional training before entering service in the Butte school system, and that few of them have felt it necessary to secure such professional training since entering upon their duties as teachers in Butte. No city may hope to develop an efficient school system without requiring professional training for all who would teach in the system. In all progressive cities known to the members of the Survey commission, no teacher is appointed to a position in the elementary schools who has not had at least two years of professional training beyond her high-school course. It is, of course, even more important that principals and supervisory officers should have had such training. In the light of these facts, the commission have decided to make a specific recommendation with regard to the professional training of those now in the teaching corps, and most strongly recommend that hereafter no one be elected to a position as a teacher or supervisor who has not had at least two years of professional training beyond the high-school course.

#### RECOMMENDATIONS FOR FURTHER PROFESSIONAL TRAINING OF THE TEACHERS AND PRINCIPALS

In order not to work any undue hardship upon those who are now at work in the school system, the plan outlined below for providing professional training is recommended by the Survey commission. As has already been indicated, the great majority of the elementary-school teachers lack adequate professional training. These teachers, in their work in the Butte school system, have had similar experiences and faced similar problems and difficulties. It seems, therefore, to the commission, that much might be gained by organizing in Butte, either for the four weeks immediately following the close of the school year, or for the four weeks immediately preceding the opening of the next school term, a summer school in which the elementary-school teachers and principals would be organ-

ized in five or six groups, according to the grades in which they teach or the special supervisory work in which they are engaged. Such a school should be under the direction of the Superintendent of Schools, who should secure professional specialists as instructors. This school should be continued for at least three years in succession, and every teacher or principal should be required to attend two out of the three years.

For those who might prefer to attend a summer school of six weeks elsewhere, provision should be made that, upon the approval by the Superintendent of Schools of the courses which they elect to take in these summer schools, they might substitute the work in summer sessions in connection with normal schools, colleges, or universities for the summer school in Butte. Since those now at work in the school system have, by virtue of the contracts which they now hold with the Board of School Trustees, earned the salary which these contracts call for, the commission believes that it would be only fair to allow to every teacher or principal attending the summer school in Butte, or elsewhere, one month's salary in addition to that called for by the present contract. We recognize that this would involve an additional annual expenditure of approximately \$20,000 in salaries, as well as the cost of the summer school in Butte. The local summer school would probably cost at least \$5,000. The commission are of the opinion, however, that there is no way in which \$25,000 could be spent to better advantage from the standpoint of improving the efficiency of the whole school system.

## (2) THE SALARIES OF TEACHERS

Any discussion of the efficiency of the teaching corps must take into consideration the salaries paid to the teaching body. The only satisfactory basis for a discussion of the salaries in Butte is to be found by comparing the salaries paid in this school system with those found in other

Western cities. The following table presents the data necessary for this comparison:

TABLE II  
COMPARATIVE SALARY SCHEDULES IN WESTERN CITIES

City	Teachers		Principals	
	Minimum Salary	Maximum Salary	Minimum Salary	Maximum Salary
1. <i>Elementary Schools:</i>				
Alameda, Cal. ....	\$ 840	\$1140	\$1620	\$2160
Berkeley, Cal. ....	840	1200	1320	2280
BUTTE, MONT. ....	800	950	1120	1540
Los Angeles, Cal. ....	744	1200	1200	2400
Oakland, Cal. ....	780	1200	1500	2400
Pasadena, Cal. ....	800	1100	1200	1900
Portland, Ore. ....	725	1100	1050	2150
Salt Lake City, Utah..	600	1020	....	....
San Diego, Cal. ....	792	1032	1200	2004
San Francisco, Cal. ....	840	1224	1320	2260
Seattle, Wash. ....	840	1110	1200	2040
Tacoma, Wash. ....	600	960	1140	1800
2. <i>High Schools:</i>				
Alameda, Cal. ....	1200	1440	....	....
Berkeley, Cal. ....	1080	1500	....	....
BUTTE, MONT. ....	1200	1400 <sup>1</sup>	....	....
Los Angeles, Cal. ....	1200	1560	....	....
Oakland, Cal. ....	1140	1500	....	....
Pasadena, Cal. ....	1100	1600	....	....
Portland, Ore. ....	1150	1350	....	....
Salt Lake City, Utah..	850	1400	....	....
San Diego, Cal. ....	1200	1524	....	....
San Francisco, Cal. ....	1500	1680	....	....
Seattle, Wash. ....	1020	1560	....	....
Tacoma, Wash. ....	810	1350	....	....

It is evident from the table given above that the minimum salary paid to elementary-school teachers in Butte compares favorably with that paid in other Western cities, but that the maximum salary paid is lower than that found elsewhere.

<sup>1</sup> One teacher paid \$1,500.



## RECOMMENDATIONS AS TO SALARIES

It is the opinion of the Survey commission that those teachers now in the system should, during the next three years, consider the extra month's salary paid for attendance upon a summer school in Butte or elsewhere as a satisfactory increase in salary. This recommendation seems valid to the members of the commission in the light of the minimum of professional training now enjoyed by the very great majority of the teachers in the Butte school system.

For those coming into the school system, who have had professional training and experience, the commission recommend a salary schedule beginning at \$900 and increasing automatically by \$50 increments annually up to \$1,000. After the salary of \$1,000 has been reached, further increase should be made to depend upon professional training or special assignment of work. The commission believe that for each of two summer sessions, a further increase of \$50 a year in salary should be allowed. (This further increase should also be allowed to teachers now in the school system after two summer sessions have been attended, in Butte or elsewhere, for which an additional month's salary has been paid.)

For one year's work in a teachers' college, or other approved professional school, an increase of \$100 in salary should be allowed, provided that no elementary-school teacher's salary shall be greater than \$1,200 annually

## A PROBATIONARY PERIOD FOR INEXPERIENCED TEACHERS

If those who have had a four years' high-school course, plus a two years' normal-school course, are admitted to the system without experience, the commission recommend that they be paid, during the first year of service, not more than \$750, and that during that year they be regularly employed in the school system as assistant or substitute teachers. When not on duty as substitute teachers, these



inexperienced teachers should be placed in the rooms of the most capable teachers in the school system, and should, under the direction of the general supervisory officers, receive careful training for the grade of work which, in the judgment of the supervisory officers, they are best able to perform.

#### SALARIES OF SPECIAL TEACHERS

Those teachers who are charged with the responsibility of training, under the direction of the general supervisory officers, these inexperienced teachers should receive \$100 annually, in addition to the salary to which they are regularly entitled as per the recommendations made above, and they should be designated as training teachers.

Teachers who are placed in charge of classes for backward or deficient children should receive these positions only after at least six weeks of special training with reference to the problem of teaching such classes. They should be given \$100 in addition to the salary to which they would be regularly entitled, as provided in the schedule suggested above.

#### SALARIES OF PRINCIPALS

In the judgment of the commission, all elementary-school principals should receive a minimum salary of \$1,200. An increase above that amount, or beyond the salary now paid to them, should be postponed until after two summer sessions have been spent by them in the study of supervisory problems, either in the Butte summer school or elsewhere. After such professional training has been secured, salaries should be increased automatically, by \$100 increments annually, up to \$1,400. For principals who show superior skill as executive officers, whose ability as supervisors of instruction in the training of the teachers under their direction is certified by the Superintendent of Schools, whose professional interest and enthusiasm are

recognized by the members of the general supervisory corps, increases by \$100 increments up to \$1,600 should be provided, depending upon the study of supervision and related subjects for at least six weeks in a summer school for each increment of \$100.

#### SALARIES FOR HIGH-SCHOOL TEACHERS

The minimum salary paid to high-school teachers in Butte compares favorably with most other Western cities. There does not seem to be enough provision for an increase in salary to enable the system to secure and hold the most capable teachers. The commission recommends that the minimum salary be put at \$1,250, and that increases of \$50 annually be allowed until a maximum of \$1,400 has been reached. For those superior teachers who are willing to spend at least six weeks in the summer sessions of recognized colleges and universities, in the study of such subjects as may be approved by the Superintendent of Schools and the high-school principal, the commission recommends that increments of \$100 for each summer session, up to \$1,600, be allowed.

For high-school teachers, either now employed or later to be employed, who possess unusual skill as teachers, executive ability, and professional interest and enthusiasm, the commission recommends the creation of the position of head of department, with a minimum salary of \$1,600 and a maximum salary of \$1,800, the maximum of \$1,800 to be reached by increments of \$100 only upon the recommendation of the Superintendent of Schools and the high-school principal, and only by virtue of the possession of superior professional training, or by reason of study in summer sessions, or in universities during other parts of the academic year, of the problems which are especially important to their several fields. It would seem to the Survey commission unwise to plan to create immediately heads of departments for each subject taught in the high

school. Such positions should be held for those now in the system who show unusual professional interest and growth, or for those who are later to be brought into the system, on account of superior ability and training.

#### ESSENTIAL FEATURES OF THE SALARY PLAN PROPOSED

The plan outlined above for establishing salary schedules for teachers of the Butte school system recognizes the fact that it is necessary to pay a minimum salary in order to justify the investment in time and money which is essential for preparation for teaching. The plan further recognizes the need for an increase beyond this minimum salary for all teachers who are considered satisfactory workers in the system. The practice of the most progressive cities of the United States has led to the recommendation that the maximum salary be granted only to those who are willing to secure special professional training, and who demonstrate special ability. It is always unwise to increase, automatically, the salaries of all teachers from the minimum to the maximum, since under such a system there are always those who early in their careers cease to be students, and consequently cease to grow in efficiency. The provisions enumerated for special training will, we believe, provide in the school system a group of wide-awake, growing, enthusiastic teachers, who must prove an invaluable asset in improving the efficiency of the school system.

## CHAPTER III

### SCHOOL BUILDINGS AND EQUIPMENT

THE problem of school buildings and their equipment had been most carefully studied, and reports had been prepared and presented by the school architect and the county health officer, and by the city health officer, prior to the beginning of the work of the School Survey commission. Access to these reports was freely granted, and they were found to be in substantial agreement. The members of the commission took copies of the reports with them, upon visiting the majority of the buildings, and found that they could, in the main, concur with the recommendations which had already been made. This section of the report will, therefore, not attempt to recite in detail the deficiencies and needs for improvement in each of the school buildings. Such a report would necessarily only duplicate the reports which are already available for the School Board and for the citizens of the city. The commission have felt, however, that it was worth while to emphasize certain deficiencies which are common, and to make certain recommendations with regard to future development.

#### SCHOOL SITES

It is unfortunate that the school sites which have heretofore been purchased have been so small. The general plan of location of school buildings which has been followed in the past is that of purchasing a corner of a block, and then placing the school building near the property line of the two streets. So long as the streets are unpaved and no street cars pass the buildings the noise is not particularly objectionable, but with the coming of streets paved

with brick or stone, and the laying of the street-car tracks in concrete, the noise of passing traffic becomes so great that school work can scarcely be carried on. There are a number of rooms in the present high-school building, for example, where, if the windows are open, teachers are practically compelled to stop work when a street car is passing the building.

A school-building site should be large enough that the building may be placed somewhat back from the street to escape some of the noise, and also to allow for playground facilities on each side of the building. The recent action taken by the Board of Trustees in presenting to the people, for their vote, the proposition to spend \$150,000 on repairs for school buildings and for enlarging school grounds, in order to provide better playground facilities, cannot be too strongly commended. In the future, school sites should never be bought unless there is ample ground not only for the building, but for playgrounds for both sexes as well.

#### TYPES OF BUILDINGS FOUND

The common type of schoolhouse construction which has been followed in the past is what may be called the square type, as contrasted with the elongated type, which will be described further on in this chapter. The picture of the Franklin School, reproduced opposite this page, shows the type very well. As this building was reconstructed in 1910, it may be taken to represent one of the more recent types of schoolhouses constructed. As will be pointed out further on, a square building does not enable an architect to provide the right type of classroom arrangement, lighting facilities, or the proper arrangement of supplemental rooms, such as will be explained later on.

Most of the buildings examined showed many defects from the standpoint of proper schoolhouse construction. The ceilings in many cases are too high, with the result that much fuel is used in heating the buildings, and much

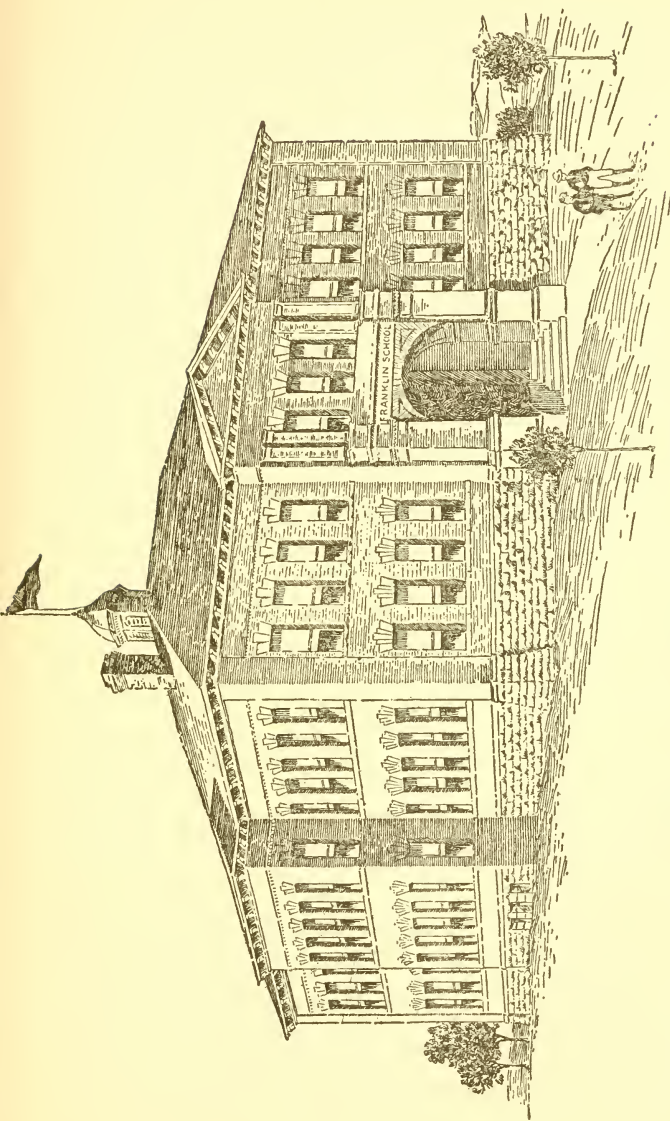


FIG. 2. A TYPICAL SCHOOL BUILDING IN BUTTE

This is a twelve-classroom building. The eight corner classrooms have light from two sides, and the four central classrooms from three sides. Heavy divisions, of about four feet each, separate the windows. The lighting arrangements are bad. (See Figure 5.)



more stair climbing is required. With a high ceiling, either more space must be used for stairways, or the incline of the stairs must be sharper. The fire escapes provided for many of the buildings are poorly arranged, children in a number of cases being compelled to go up steps and through a window in order to reach the fire escape; whereas the fire escape should be reached, in all cases, through a door provided with patent inside openers.

In most of the buildings examined, the ventilating system was so poor that open windows had to be depended upon, in most of the rooms, for ventilating purposes. The air intakes were near the ground, instead of at the top of the building, and the smoked and dirty walls showed plainly that the ventilating system was not a satisfactory one. In a community such as Butte, where so much soft, smoky coal is used, all air sent to the schoolrooms for ventilating purposes should first be passed through a washing chamber, to remove the soot and dirt from it.

The toilet facilities provided in most of the buildings are inadequate, there being only about one half the number of toilets provided which good schoolhouse construction requires. The ratio used by the best schoolhouse architects is one toilet for every fifteen girls, and one toilet or urinal for every fifteen boys, whereas the ratio commonly found here varied from one to twenty-five to one to forty pupils. The buildings generally were inadequately supplied with drinking fountains, and the basements of many were dirty, and some contained inflammable material which ought to be kept in special rooms.

#### TYPICAL CLASSROOMS FOUND

The drawing on the following page shows a typical classroom as found in Butte. It will be noticed that the lighting is from two sides, that the room is square, and that the room is relatively large. Many still larger rooms are to be found in the different schools. In some of the build-

ings, and even in some of the recently constructed ones, rooms were seen in which the light came from three sides

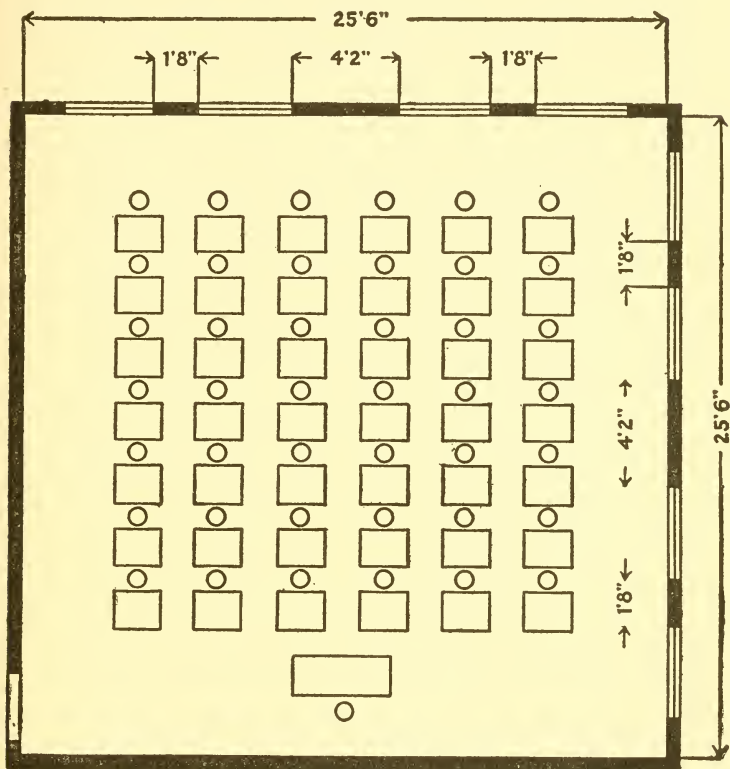


FIG. 3. A TYPICAL CLASSROOM IN BUTTE

A classroom in the Lincoln School. This is a typical Butte classroom, though there are many which are still larger. The square room, lighted from two sides, and the heavy divisions between the windows are the prominent characteristics of the room. The glare of light in such a room is very trying to the eyes.

instead of two, though two is the almost universal arrangement. The ratio of glass to floor space is not the only



factor; the light must come into the room in the proper manner also. On the new Washington School, which is now in process of construction, these fundamental errors have been repeated in a number of the classrooms, and in two rooms the lighting comes from three sides. As a result, in almost every room in the city, the resulting glare and shadows must prove most injurious to the eyes of both the children and the teacher. In future buildings, no room should be lighted from more than one side, and the arrangement of windows should be as is indicated in the drawing and description given on the opposite page.

In nearly all classrooms examined the blackboards were in poor condition, and in general were too high from the floors. Many of the blackboards now in use are shiny, difficult to write upon, and harder to read from. Any that are to be kept in use should be resurfaced frequently, and as soon as possible slate blackboards should be substituted. The commission wishes to commend most heartily the action of the Board of Trustees in calling for bids for a carload of slate blackboards to replace the poorer of the composition boards now in use.

The walls in many of the buildings are dirty, and of a most unsatisfactory color. They should be retinted, in light and soft neutral tones, and kept in good condition.

In all of the buildings, many of the children are sitting in seats which are positively injurious to them. In two rooms noted one fourth of the children could not touch the floor with their feet. All new seats bought should be of the adjustable type, and janitors should be required, under the supervision of the principal, to readjust, at least twice a year, such seats as may need to be changed. While the non-adjustable seats are still in use, seats of different sizes should be provided in each room, in order to make better provision for the varying physical development of the children who are to be found there. Many of the seats in the city should be scraped and varnished before the next school term opens.

## A PROPER TYPE OF CLASSROOM

Figure 4 shows a good type of classroom, such as is now provided in all well-built schoolhouses. It will be

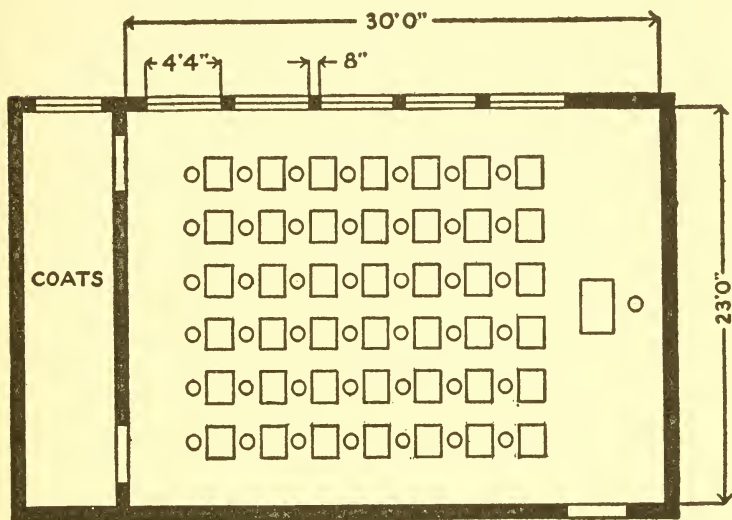


FIG. 4. PROPER ARRANGEMENT OF CLASSROOM

This room has approximately the same floor area as the other (Fig. 3), but the space is better arranged. The windows are banked on one side, and the narrow divisions between the windows, formed by steel I beams, eliminate shadows. The light comes to all pupils over the left shoulder, and more from the rear than the front. The ceilings should not exceed 12 to 13 feet, and the windows should go to the ceiling.

noted that the lighting is from one side, that the windows are closely banked, that the heavy mullions which characterize the Butte buildings have been eliminated, and that the lighting comes more from the back than from the front of the room. The room is also built on the dimensions of approximately three wide by four long, so as to secure adequate lighting in all parts of the room. By such an

arrangement of windows and seats, every child is provided with adequate light, coming over his left shoulder, and no one has to face a glare of light as at present.

#### A NEW TYPE OF BUILDING NEEDED

In all future construction, a new type of school building should be provided. A picture of one of the best of our modern types of school buildings is here introduced. It will be seen from the figure that this is a fourteen-classroom building, with eight classrooms on the front and six on the back, and with an assembly hall projecting from the rear in place of two of the lower classrooms. The construction is simple, all fancy exterior ornamentation has been eliminated, and the building is designed to provide the best of conditions for the children inside of the building, rather than to produce a fancy exterior to please the architect. The building also is what may be called the elongated type, as opposed to the square type shown in the picture of the Franklin School. A comparison of the two pictures will show what entirely different types of buildings the two are. The picture showing the desirable type also has an advantage in that, at any time, it may be extended by adding four classrooms on each end.

To get a better idea of interior arrangements, we also reproduce, on the following pages, three floor plans, showing the interior arrangement of another and a slightly larger example of one of the best of our more recent buildings. An examination of these plans will show the many advantages of such a building over the present type of building in Butte. The lighting arrangements are excellent, classrooms are of the proper size and dimensions, but little space is used in corridors, and the building is provided with many of those extra facilities—such as gymnasium, assembly hall, retiring rooms, teachers' rooms, and special classrooms—which should characterize any modern school building. By means of two sliding doors, which

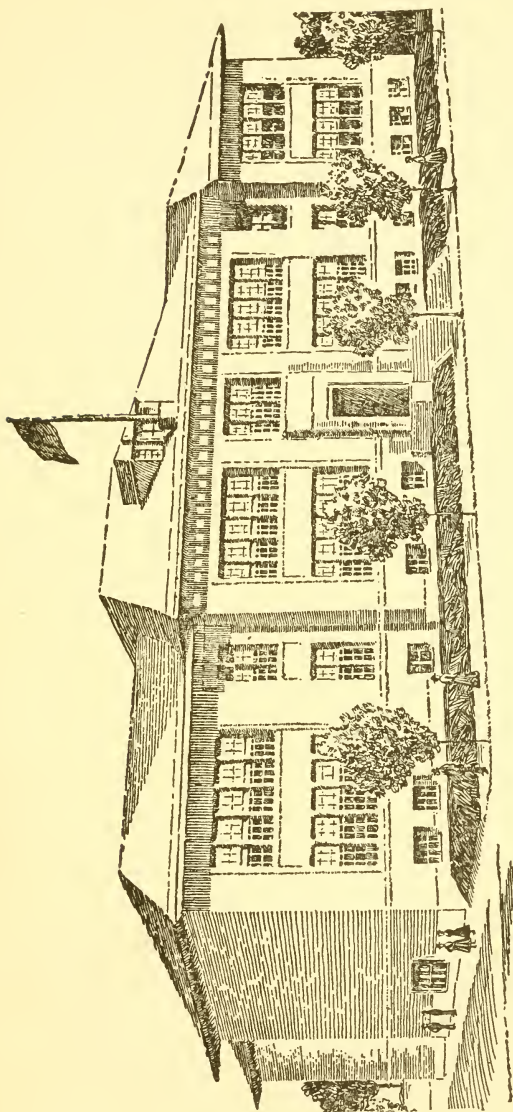


FIG. 5. A WELL-LIGHTED SCHOOL BUILDING

The banking of the windows for lighting, the windows between the classrooms to give light and ventilation to the cloakrooms, the assembly hall to the rear, and the fine lines of this building are its marked characteristics.

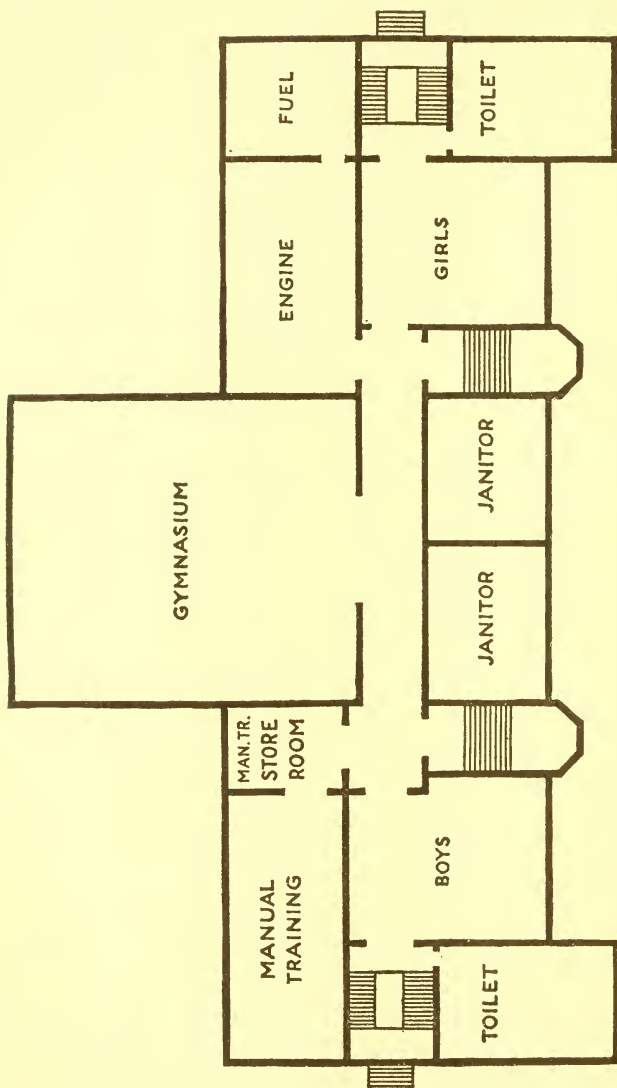


FIG. 6. BASEMENT PLAN

The gymnasium, the indoor playrooms for both boys and girls, and the corner toilets, well separated and easily accessible from the playgrounds, and capable of ventilation from the windows, if other means fail, are prominent features of this basement plan. The manual-training room is isolated from the other schoolrooms, so that the noise will not disturb classes. In the construction of the building, the manual-training corner should be waterproofed, to eliminate dampness.

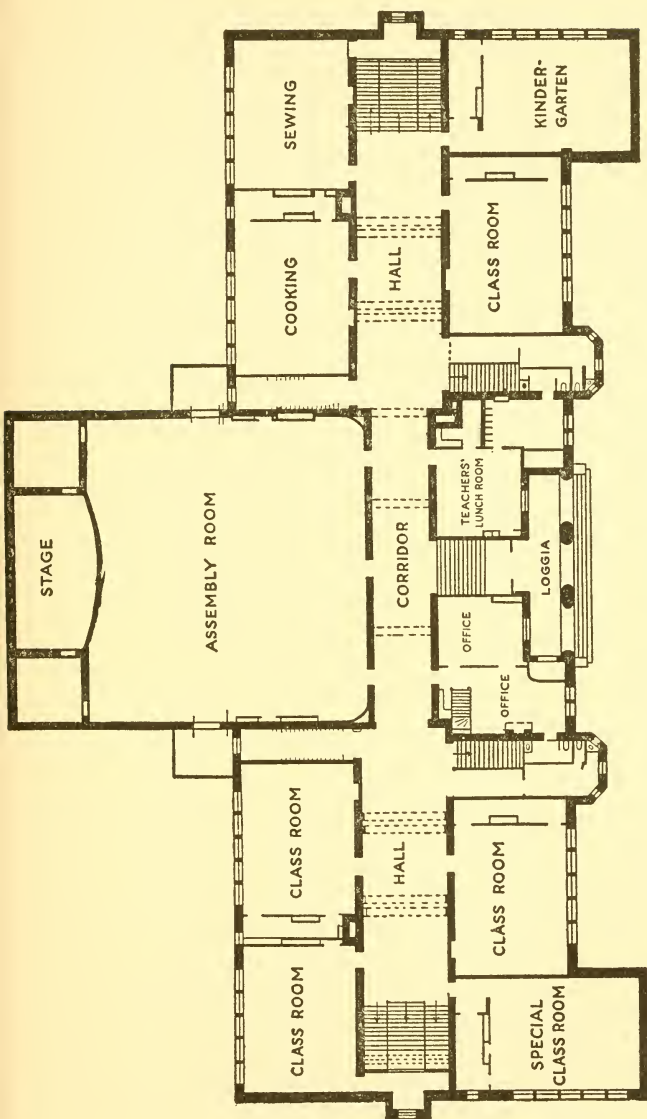


FIG. 7. FIRST-FLOOR PLAN OF A SUGGESTED TYPE OF SCHOOLHOUSE

An assembly hall, of sufficient size to seat all of the pupils of the school at one time, is a prominent feature of this floor. By means of sliding or folding doors, to be placed so as to close the main corridor, at each side of the assembly hall, the hall may be used for gatherings, at times when the school is not in session, and with no access to any other part of the building.



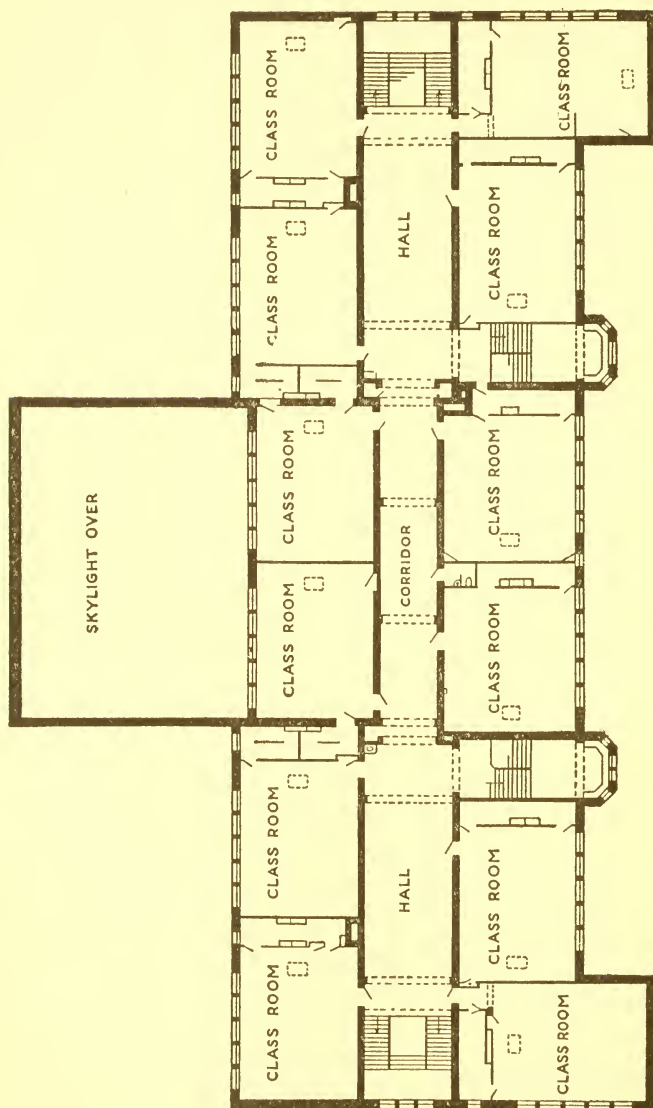


FIG. 8. SECOND-FLOOR PLAN OF A SUGGESTED TYPE OF SCHOOLHOUSE

Twelve classrooms, with cloakrooms, characterize this floor. The small space used for halls and stairways is a feature of the building, though four stairways lead from each floor to the one below.

can be drawn to shut off the lower corridor, the assembly hall may be used in the evening for community meetings, lectures, entertainments, or any other similar purpose, and with no access to the building other than through the front entrance and the corridor leading to the assembly hall. Such a type of building could be made of the greatest service, in the education of the whole people, in such a community as Butte, and could be made a social as well as an educational center for the community in which it is located.

#### THE ADVISABILITY OF ERECTING LARGER SCHOOL BUILDINGS

The Survey commission feel very strongly that the School Trustees have been making a fundamental error in erecting so many small buildings. If the financial records, pointed out as desirable in Chapter V, were available, the commission have no doubt that these small buildings would be found to cost much more per capita for maintenance than the larger buildings. That they are not so efficient educationally there can be little question. The Board of Trustees ought, in the future, to plan to erect buildings containing sixteen to twenty classrooms. If one room is used for a kindergarten, one for a special type of schoolroom, and provision is then made for domestic science and manual training in the buildings, but sixteen classrooms will be left, for ordinary classroom purposes, in a twenty-classroom building. This number of rooms is desirable, not only from the standpoint of economical administration, but also because it gives an opportunity for the proper grading and classification of the pupils. The building for which floor plans have been introduced is such a twenty-classroom building, not counting the assembly hall or basement.

A number of the school buildings in Butte are in such poor condition, and are so poorly constructed from the standpoint of proper standards of schoolhouse construc-



tion, that they ought within a short time to be replaced by a better type of building. As fast as can be done, larger buildings, modeled somewhat after the type shown, should be erected to replace these smaller buildings. The Greeley School is now in such a condition that it ought soon to be abandoned, and it is almost a waste of money to try to repair it. The Lincoln School also ought soon to be replaced by a better type of building. What is true of these two schools is true, in a certain sense, of some of the others, and it is probable that within the next ten to fifteen years the school authorities of Butte will need to replace a number of their buildings by schools of a better and more modern type. When the time comes for such reconstructions, the Board of Trustees should build larger units and fewer buildings, and should try to obtain a full block of land for each of the larger schools. The building could then be located in the center of the block, removing it somewhat from the noisy street and giving ample playground facilities. It would be much more economical to abolish some of the smaller schools and transport the pupils, even at public expense, to these larger central buildings, and by this means the education which is provided for the children could be very materially improved.

#### INTERMEDIATE-SCHOOL AND HIGH-SCHOOL BUILDINGS

In another part of this report the Survey commission have made recommendations for the establishment of kindergartens, special classes for backward children, and manual-training and domestic-science centers in each of the larger schools (Chapters VI and XI), and also have recommended the creation of intermediate schools (Chapter VIII). Should the Board of School Trustees consider it desirable to follow the recommendations of the Survey commission in the first of these, it will be found necessary to create a central intermediate school in order to care for the children of the upper grades whose rooms must be

vacated if the other types of schools are to be put in the present buildings, most of which are already full. Should this be done, it would then seem to the members of the commission to be advisable to establish, in the present high-school plant, the intermediate school recommended in Chapter VIII, and to secure for the high school a new site, and to put up a new building better adapted to high-school needs.

The present high-school plant is already too small and in many respects is a very unsatisfactory building. There are not enough classrooms to meet the needs of the present teaching force under a normal schedule of work. A number of the classrooms are extremely dark, and are not fit for class use. In a few, electric lights have to be burned, even on sunshiny days. Some of the halls are dark, many of the rooms are noisy, and the general arrangement of the building is not one well adapted to the best high-school instruction. If the intermediate school were located in the present high-school plant, it would be possible to abandon the rooms which are most unsatisfactory, and to make such alterations and repairs as might be necessary to put the present building in a reasonably satisfactory condition. The present board and office rooms could then remain as they are, without the expense necessary to remove them to other quarters.

With the present high-school population, and with the increase that may be anticipated during the next few years, it seems to the members of the commission extremely unwise to spend any more money in trying to enlarge or add to the present high-school building. As is pointed out in Chapters VI and VIII, the high school should materially enlarge its influence in this community, especially by the development of more technical work, and this cannot be done in any satisfactory manner in the present quarters. If a new high-school site of not less than a block of land were obtained, reasonably near the center of population but removed from noisy car lines, and a modern high-

school building were constructed on it, there could be placed in this building a large gymnasium and assembly hall, and the building could be made the main center for the intellectual life of the whole community. The building should be provided with good library facilities, and the needs of night classes as well as day classes should be kept in mind in its construction. With the proper development of the elementary-school system, the provision of intermediate schools, with differentiated courses, and the erection of a high-school building suited to the educational and social needs of this community, it is not unreasonable to expect that within a few years there would be an attendance of fourteen to fifteen hundred in day classes and two thousand in night classes. The influence of such an educational institution on the community can scarcely be overestimated.

The members of the commission are not unmindful, in making the recommendations given above, of the expense which would be involved in carrying out this program. They have found themselves, however, unable to suggest any other solution which seems to them to promise adequate school facilities for the children of Butte.

#### JANITOR SERVICE

The janitor service in the different buildings appeared to the members of the commission to be faithful but not always intelligent. The janitors seemed to be willing and attentive, but in many cases not to understand how to secure the best results. In two buildings members of the commission found janitors sweeping without using the sweeping compound supplied by the Board. Though the need for using the sweeping compound was pointed out to both principal and janitor, in one case a second and later visit to the building found the janitor following the same old methods. The fumigation of the buildings required by the regulations of the Board was, in general, carried

on in such a manner as to be of practically no value. In one building, three out of seven of the water closets used by the boys were found with the seats off, and in a number of cases the closets would not flush. When asked about it, both janitor and principal said they had known of the defects before, but apparently no effort had been made to remedy the defects. Many of the desks in the school-rooms were in a bad condition of repair.

The need of some intelligent supervision of the janitorial force, clothed with proper authority, was evident to the members of the commission, and they wish to recommend that the School Clerk, who is nominally in charge of the janitorial force, be given, subject to the coördinating supervisory authority of the Superintendent of Schools, as is pointed out in Chapter I, supervisory control over the janitorial force of the city, and that he be given authority and power to enforce such regulations as may seem advisable to secure more efficient service than is now rendered in the different school buildings. For the sake of thoroughly cleaning the buildings, making needed repairs, overhauling the ventilating systems, resurfacing and revarnishing desks, and the like, it seems to the members of the commission that it would be advantageous to employ the janitorial force throughout a portion or perhaps all of the summer vacation.

## CHAPTER IV

### CENSUS, RECORDS, AND REPORTS

THE schools of the city of Butte exist for the education of all the children of the city. Only as these schools reach and give to the children of the city at least a complete elementary-school education, if not a high-school education, are they fulfilling their function and performing their full service. The efficiency of the schools of Butte can be judged, therefore, from this point of view, only when it is known to what extent they are reaching all of the children of the city of school age, and to what extent they are holding them in school.

#### THE PRESENT SCHOOL CENSUS

The only source of knowing the number of children in the school district served by the schools of Butte is the school census. This census is taken annually between the first day of September and the first day of October, under the authority and direction of the clerk of the Board of Education.

The school census collects the following information: Names of all children and youth between the ages of 6 and 21 years, giving age, date of birth, sex, name of father, name of mother or guardian, residence of parent or guardian. Though not required by law, similar data are collected for all children under 6 years of age; also, a separate tabulation is made for deaf, blind, and feeble-minded persons. In a word, the school census as now taken includes an enumeration of all persons in the district under 21 years of age.

The purpose of the school census is to provide the basis



CODE NUMBERS TO BE USED IN COLUMNS

AUTHORITY FOR DATE OF BIRTH	SEX	RACE	BIRTHPLACE OF CHILD	
1. Birth Certificate,	1. Boy	1. White	1. United States	5. Italy
2. Baptismal Certificate	2. Girl	2. Negro	2. Ireland	6. England
3. Parent's Statement		3. Mongolian	3. Germany	7. Canada
			4. Russia	8. Hungary

[illegible][illegible]



for the apportionment of the state school fund. We are informed that little if any use is made of the school census in determining to what extent the children enumerated are actually to be found in the public, private, or parochial schools of Butte. That is, the school census is not used as the basis of determining the actual number of children that should be enrolled in the schools.

While the school census of District No. 1 is perhaps as complete as such censuses generally are, and the form in which it is tabulated is excellent, yet in all probability, even if it were desired, the school census as now taken would not serve as an accurate base of determining the number of children within the district which should be in school.

#### SUGGESTIONS FOR IMPROVING AND AMENDING THE SCHOOL CENSUS

The prime purpose of a school census is to furnish accurate and complete information with respect to all children and youth who should be in school, and to supply a fact basis for the enforcement of the Compulsory Education Law.

#### *Information to Collect*

To this end, we believe, the school census should collect the data as called for in Form No. 1.<sup>1</sup> In this form, in addition to the information now collected in the school census, emphasis is placed upon the nationality of children, on how the children and youth of the district are employed, and on the enrollment and non-enrollment of school children. Also, provision is made for memoranda on houses which are closed and from which no children are reported. These memoranda serve as a simple basis of reenumeration. The form proposed to be used in the school census includes

<sup>1</sup>A series of six forms were prepared, to illustrate this chapter of the report, and these are to be found in Appendix B.

## FORM 1. THE SCHOOL CENSUS BOOK

[illegible][illegible]



all the information required by the State Law of Montana. This information could be tabulated and presented in such form as is prescribed by the State Law, while the additional information provided should be tabulated and made useful in the determining of educational policies and the enforcement of the Compulsory Education Law.

### *Time to Take the Census*

At present, the school census is taken between the first of September and the first of October. If a school census is to serve its primary purpose, it should be taken earlier in the summer, and should be completed some weeks prior to the opening of the schools. When taken during the summer, the attendance officers can be employed in the work. Should this be done, it would not only decrease the expense, but probably increase the thoroughness of the census. Moreover, when the census enumeration is taken prior to September, it is possible to complete the census file hereafter mentioned, and tabulate material so as to be useful in determining, at the opening of the school year, the number of children who should be, and who are not, in school. To be sure, the present law prescribes the date of taking the census. It would seem possible, however, to secure such changes in the law that the enumeration might be taken at the time when it would be of the greatest usefulness.

### *Card Census File*

While the information called for in Form No. 1 may be thus entered in the books prescribed by the State Law, for practical purposes the census is kept on Form No. 2, the School Census Card. A card is filled out for each child of school age, and these are filed in the office of the Superintendent of Schools, alphabetically, within the public or private or parochial school attended. A separate file is provided for all children who for any reason are not at-

# SCHOOL CENSUS CARD

## PUBLIC ELEMENTARY SCHOOLS, BUTTE, MONTANA

LAST NAME	FIRST NAME	DATE OF BIRTH				AGE SEPT. 1	Parent's first names or Guardian's full name
		Mo.	Day	Year	★		

PHYSICAL OR MENTAL DEFECTS (Check ✓)							White	Col'd	Mong'l	NATIVE COUNTRY	
Blind	Crip'd	Deaf	Speech Defect	Epilep- tic	Back- ward	Tuber- cular	Boy				Child
							Girl				Father

RESIDENCE	SCHOOL ATTENDING	DATE ADMITTED			Use the following code numbers in columns designated by *  <b>Date of Birth:</b> 1. Birth Certificate. 2. Baptismal Certificate. 3. Parent's Statement. Cause of Non-Enrolment:  <b>Cause of Non-Enrolment:</b> 1. To be enrolled in Sept. 2. Incapacitated. 3. Illegal Non-Attendant.
		Mo.	Day	Year	

CAUSE OF NON-ENROLMENT ★

## PUBLIC ELEMENTARY SCHOOLS, BUTTE, MONTANA

SCHOOL, FOR WEEK ENDING _____ 191_____ (FORWARD TO SUPT. OF PUBLIC SCHOOLS)		PRINCIPAL
PUPILS ADMITTED ON TRANSFER FIRST NAME	NEW RESIDENCE	PUBLIC SCHOOL FORMERLY ATTENDED
PUPILS DISCHARGED ON TRANSFER	NEW RESIDENCE	PUBLIC SCHOOL TO BE ATTENDED
PUPILS DISCHARGED WITHOUT TRANSFER	RESIDENCE	CAUSE OF LEAVING
<b>Causes of Leaving:</b> Use the following code numbers: 1. Under compulsory school age. 2. Incapacity (physical). 3. Incapacity (mental). 4. Indifference to school work. 5. Economic status of family (obtained employment certificate). 6. Economic status of family (not obtaining employment certificate). 7. Left to go to a private school. 8. Left to go to a parochial school. 9. Removed from the city. 10. Illness or death in the family.		11. Committed to the Industrial School. 12. Kept at home for private tuition. 13. Unknown.

tending school as required by law. This file becomes the working basis of determining the number of children within the district who should be in school and a basis of enforcing the Compulsory Education Law.

That the information contained on these census cards may be up to date and accurate at the time the file is first instituted, all schools, public, private, and parochial, should be required to file, in the office of the clerk of the Board of Education, information with regard to each child enrolled in the respective school or institution at the end of the school year. With this complete file of children, both in attendance and non-attendance, each school, whether public, private, or parochial, is notified of the pupils that should be in their school at the opening of the first semester. This list is, in turn, checked by the respective principals, and the pupils not reporting to their respective schools or to any school supplies the list of pupils who should be immediately looked up by the attendance officers.

### *Keeping the Census File Up to Date*

In order that the census file may be kept up to date, the principal of each school, whether private, parochial, or public, should at the close of each week of the school year send to the office of the City Superintendent of Schools a School Census Card (Form No. 2), for each child admitted who has not been previously in attendance in any school in Butte.

In addition, the principal of each school building, whether public, private, or parochial, should at the close of each week send to the office of the City Superintendent of Schools, on Form No. 3, (a) information with regard to pupils admitted on transfer, (b) information with regard to pupils discharged on transfer, (c) pupils discharged without transfer.



## EDUCATIONAL USE OF THE CENSUS FILE

As suggested above, the census file, after the taking of each school census, supplies exact information with regard to all children of school age in the district; also with regard to the number actually attending school, and the number not attending for unlawful reasons, as well as the number not attending for lawful reasons. When this file is checked, at the beginning of the school year, as against the children actually in attendance, the school officers are supplied with definite lists of pupils who should receive their immediate attention. Through supplementing the census, by the means suggested, during the course of the school year, census officers are provided with definite information with regard to children that are in transit, by reason of being transferred from one school to another, or dropped out of school for unknown reasons, and these lists supply the attendance officers with the information which enables them to follow up, in addition to cases actually reported by principals, all cases of non-attendance, where there is doubt. It is only by thus establishing a complete census file, and supplementing it during the course of the year, that it is possible to know the actual number of children in school, and the extent to which the schools of Butte are actually keeping the children in school.

## PRESENT EFFECTIVENESS OF ATTENDANCE SERVICE

The primary purpose of a complete school census is, as previously indicated, to supply the basis of enforcing the Compulsory Education Law. While there are no records available which indicate whether or not the schools are reaching all the children of school age in the community, there are available facts which prove that, once children are enrolled, they are kept in regular attendance. This is shown in Table III, on the following page.

TABLE III  
ATTENDANCE DURING FIRST SEMESTER (1913-14) IN TWO TYPICAL ELEMENTARY PUBLIC SCHOOLS

Grade	Total Enrollment	Enrollment at End of Semester	Of the 170 Half Days School Was in Session, the Following Number of Pupils Attended a Given Number of Half Days										170
			Less than 80 Half Days	80 and Less than 90	90 and Less than 100	100 and Less than 110	110 and Less than 120	120 and Less than 130	130 and Less than 140	140 and Less than 150	150 and Less than 160	160 and Less than 170	
8 A.....	27	27	0	0	0	0	0	0	0	2	2	18	5
8 B.....	42	41	0	0	0	0	0	0	0	3	5	24	9
7 A.....	40	36	0	1	0	0	0	1	1	1	6	17	9
7 B.....	65	61	0	0	0	0	0	0	3	9	8	24	17
6 A.....	44	41	0	0	0	0	0	0	1	4	8	24	4
6 B.....	69	66	5	1	0	1	0	1	0	5	8	35	10
5 A.....	44	41	0	0	0	0	0	0	1	1	5	27	7
5 B.....	82	76	1	0	0	0	2	0	2	5	9	39	18
4 A.....	51	48	1	0	0	1	0	0	2	0	4	27	13
4 B.....	66	59	2	2	1	1	1	1	0	1	6	32	13
3 A.....	54	50	2	0	1	1	0	0	0	1	3	31	11
3 B.....	102	97	2	0	1	1	0	2	2	3	13	62	11
2 A.....	64	63	1	0	2	0	0	2	5	4	10	25	14
2 B.....	76	71	4	0	1	0	0	2	2	4	15	32	11
1 A.....	71	70	1	0	0	1	0	1	4	5	13	26	19
1 B.....	150	138	6	1	3	0	5	3	3	9	29	56	26
Total.....	1,047	985	25	5	9	5	8	13	26	54	144	499	197

The attendance of pupils in these two typical elementary schools by periods was:

Attending less than 80 half days.....	2.5 per cent.
Attending 80 and less than 90 half days.....	.5 per cent.
Attending 90 and less than 100 half days.....	.9 per cent.
Attending 100 and less than 110 half days.....	.5 per cent.
Attending 110 and less than 120 half days.....	.8 per cent.
Attending 120 and less than 130 half days.....	1.3 per cent.
Attending 130 and less than 140 half days.....	2.6 per cent.
Attending 140 and less than 150 half days.....	5.5 per cent.
Attending 150 and less than 160 half days.....	14.6 per cent.
Attending 160 and less than 170 half days.....	50.1 per cent.
Attending 170 half days, the entire session.....	20.0 per cent.

This is excellent school attendance, and is evidence of the earnest work of teachers, principals, and attendance officers in looking after and seeing that children are regularly at school.

#### SCHOOL RECORDS NEEDED

While it might be held that the present excellent attendance in the public schools is ample proof of the efficient enforcement of the Compulsory Education Law, the Survey commission are, however, of the belief that the effectiveness of this enforcement can be still further increased, and that, essential to such enforcement, certain records are indispensable:

1. An accurate record of attendance at any school, kept by the teacher—that is, an accurately kept daily register or blotter.
2. A uniform method of referring cases to the attendance officers, by teachers and principals.
3. A uniform system of reporting back cases to school authorities, by attendance officers.
4. A uniform system of principals' reporting to the Superintendent cases referred to the attendance officers, and the results of the investigations.



[illegible]

RECORD OF SCHOLARSHIP

DATE	Days Pres.	Dept.	Effort	Read	Arith.	Lang.	Spel.	Geog.	Phys.	U. S. History	Wri.	Drwg.	Music	Man. Tr.	Sew.	Ave.	Prom. Ave.	Promoted	Not Prom.	Cause of Non-Prom.
SEPT.																				★
OCT.																				
NOV																				
DEC.																				
JAN.																				
JAN.																				
FEB.																				
MARCH																				
APRIL																				
MAY																				
JUNE																				

USE CODE NUMBERS IN COLUMNS DESIGNATED BY ★ AS FOLLOWS :

- Cause of Late Entrance, and of Irregular Attendance:
- Moving to city
  - Under legal school age prior to entrance
  - Illness of child.
  - Illness or death in family
  - Illegally employed.
  - Quarantined.
  - Tenant child
  - Poverty
  - Parental neglect.
  - Court
  - Inclement weather.
  - Unknown

- Causes of Leaving:
- Under compulsory school age.
  - Incapacity (physical)
  - Incapacity (mental).
  - Indifference to school work.
  - Left to go to a private school.
  - Left to go to a parochial school
  - Removed from the city.
  - Illness or death in the family
  - Economic status of the family (obtained employment certificate)
  - Economic status of the family (not obtaining employment certificate).
  - Committed to the Industrial School.
  - Kept at home for private tuition.
  - Unknown.

Causes of Non-Promotion:

- Late entrance.
- Irregular attendance.
- Physical defects.
- Incapacity
- Indifference to school work.





5. A uniform system of reporting to the Superintendent the cases investigated by the attendance officers, and the results of their investigations.

### *The Teacher's Register or Blotter*

There is used, in the public schools of Butte, a loose-leaf daily blotter. The use of this blotter causes the teacher to copy, during the course of the year, the names of all the pupils in her class not less than ten times. In place of this loose-leaf blotter, we would recommend the use of Form No. 4, Attendance and Scholarship Card. If deemed desirable, a loose-leaf blank could be substituted for the card. Not only would the substitution of either the card or loose-leaf form obviate unnecessary copying of names, but such a form would greatly facilitate the transfer of pupils, the individual attendance and scholarship card being sent to the school to which the child is transferred, in the same way as the admission, discharge, and promotion card is now sent. The adoption of this attendance and scholarship card would not only supply the data on attendance needed for the enforcement of the Compulsory Education Law, but it would make possible a simplification of the present monthly report and summary for the semester. The simplification of the present blotter, monthly report, and summary for the semester is greatly to be desired. Moreover, the attendance and scholarship card, to be filed at the end of each school year with the principal, would serve as a cumulative attendance and scholarship record for the child during his entire school course.

### *Report of Principal to Attendance Officers*

The report of cases by principals to attendance officers is now made orally, only the name and the address of the child, as a rule, being given. That the present effectiveness of the attendance service may be increased, we be-

lieve that a uniform method of reporting these cases should be introduced. To this end, we recommend the introduction of Form No. 5, Absent Report. This is a simple form, giving merely the requisite data for the location of the child, statement of amount of absence during the period in question, the date of attendance officer receiving and making a report on the case, and the result of the investigation. Such a record not only serves as the basis, on the one hand, for the attendance officer reporting his work to the Superintendent, but also as the basis of the principal keeping the official records of the school and of making her report to the Superintendent.

### *Report of Principal to Superintendent*

It is required at the present time that the principals report, monthly, to the City Superintendent on truants and non-attendants referred to the attendance officers. The report includes the name, age, and grade of pupils; also, whether or not the child is a truant or merely a non-attendant, and the result of the investigation by the attendance officer. While these reports are sent regularly to the office of the City Superintendent, they are by no means filled out either uniformly or completely. To the end that the principal's monthly report to the Superintendent on truants and non-attendants shall be made uniform, and that the data included therein shall be complete, we recommend the substitution of Form No. 6.

### *Report of Attendance Officers to Superintendent*

All reports at present made by truant officers to the Superintendent are essentially verbal reports. To be sure, each attendance officer keeps memoranda of the cases handled by him, but, so far as we know, no formal reports are submitted by the attendance officers.

Such formal reports are, however, required by law of

# REPORT ON ABSENCE

## PUBLIC ELEMENTARY SCHOOLS, BUTTE, MONTANA

LAST NAME	FIRST NAME	SCHOOL	GRADE	SIGNATURE OF ATTENDANCE OFFICER
RESIDENCE				

REPORT	REPORT OF PRINCIPAL				REPORT OF ATTENDANCE OFFICER									
	SESSIONS ABSENT				DATE RECEIVED	DATE FILED		Absence Lawful	Absence Unlawful	Date of Probable Return	Date Com. to Ind. School			
	FROM		TO											
	MO.	DAY	MO.	DAY	MO.	DAY	MO.	DAY			MO.	DAY	MO.	DAY
1														
2														
3														
4														

USE CODE NUMBERS ON BACK OF THIS CARD DESIGNATED BY ★

On the opposite side of this card use the following code numbers in columns designated by \*

**Absence Lawful:**

1. Illness of child.
2. Illness or death in family.
3. Quarantined.
4. Poverty.
5. Court.
6. Inclement weather.

**Dropped Pupil:**

1. Under compulsory school age.
2. Incapacity (physical).
3. Incapacity (mental).
4. Indifference to school work.
5. Left to go to a private school.
6. Left to go to a parochial school.
7. Removed from the city.
8. Illness or death in the family.
9. Economic status of the family.  
(Obtained employment certificate.)
10. Economic status of the family.  
(Not obtaining employment certificate.)
11. Committed to the Industrial School.
12. Kept at home for private tuition.
13. Unknown.

**Absence Unlawful:**

1. Truant child.
2. Parental neglect.
3. Illegally employed.



## PUBLIC ELEMENTARY SCHOOLS

BUTTE, MONTANA

ATTENDANCE OFFICER

[illegible]

### INTERPRETATION OF CODE NUMBERS IN COLUMNS\*

**A. Absence Lawful:**

1. Illness of child.
2. Illness or death in family.
3. Quarantined.
4. Poverty.
5. Court.
6. Inclement weather.

### B. Dropped Pupli:

1. Under compulsory school age.
2. Incapacity (physical).
2. Incapacity (mental).

4. Indifference to school work.
5. Left to go to a private school.
6. Left to go to a parochial school.
7. Removed from the city.
8. Illness or death in family.
9. Economic status of family (obtained employment certificate).
10. Economic status of family (not obtaining employment certificate).
11. Committed to the Industrial School.
12. Kept at home for private tuition.
13. Unknown

C. Absence Unlawful:

1. Truant child.
2. Parental neglect.
3. Illegally employed.







NA

ATTENDANCE OFFICER

## ATTENDANCE OFFICER

[illegible]

JMNS\*

C. Absence Unlawful:

1. Truant child.
2. Parental neglect.
3. Illegally employed.

ate).  
ertificate).

attendance officers. To the end that systematic record may be available on the work of the attendance officers, more particularly that there may be at hand evidence of the effective work now being done, we recommend the adoption of Form No. 7.

#### NEED FOR MORE EFFECTIVE COÖPERATION IN ATTENDANCE WORK

In order to determine whether or not all the children of school age of Butte are in school, there is need of a complete census. To make this school census effective, it is necessary to have records of all children who are actually in school, and of current changes in school enrollment. At present, there are no reports made to the Board of Education with regard to the children enrolled in either private or parochial schools. It is incumbent by law, Section 1104 of the General School Law of the State of Montana, that the principals of these schools make such reports. That is, the principals of these schools should be requested to comply with this law, and to provide the clerk of the Board of Education with the same data on enrollment and changes herein, as are requested from the principals of public schools, using in all cases the same blank forms in making said reports.

If the children of Butte are to receive the education which they should receive, it is necessary to have an effective enforcement of the Compulsory Education Law. So far as the public schools are concerned, this law seemingly is well enforced. No facts are available with regard to its enforcement in private and parochial schools. If the Compulsory Education Law is to be enforced most effectively, the same records and reports on absence, truancy, etc., should be required of the principals of private and parochial schools as the commission recommends should be required of the principals of public schools.

Since it is possible, under the law, to require such in-

formation of private and parochial schools, we feel that the information will be readily given, and that not only will this information be readily given, but when it is understood that the purpose of this information is to secure to every child of Butte the education to which he is entitled, all concerned will willingly coöperate to this end.

#### ADVANTAGE OF SIMPLIFYING PRESENT SCHOOL RECORDS

There is need, as we shall see in Chapter VI, of collecting additional information on the actual workings of the schools, if there is to be at hand an adequate fact basis for measuring the efficiency of the schools, and on which to base administrative action. On the other hand, certain of the present reports should be simplified, such, for example, as the teacher's monthly report and the principal's monthly report. The need of simplification is particularly evident in the case of determining the promotion average of pupils; also in the record scholarship card which is sent to parents monthly. Much of the detailed work involved in determining the promotion average of children and in making out the record scholarship card could be avoided, if the monthly record of the child for each of the several subjects should be regarded as cumulative. That is, if the scholarship mark given for the last month of the school term should be recognized as the teacher's estimate of the effort and achievement of the child for the school term, it could be substituted for the present promotion average, which is now determined at such a cost of energy and time on the part of teachers.

#### SUMMARY

To summarize: there is need, in the opinion of the Survey commission, of making the present school census more complete; this school census should then be made the basis of checking the number of children who are illegally

absent from school, whether public, private, or parochial, and of enforcing the Compulsory Education Law. To this end, we believe that a school census as outlined above should be taken and that the above-suggested forms for reporting absence to attendance officers, the monthly report of principals on absence cases, and the monthly report of attendance officers be introduced. Should these recommendations be put into effect, taking into consideration the present excellent service of teachers, principals, and attendance officers and the present excellent attitude of the community toward school attendance, there is no reason why children in Butte should be absent from school any considerable length of time without lawful reason. Moreover, if the above suggestions with regard to simplifying present reports are put into operation, teachers will be relieved of considerable unnecessary detail, whereas if the recommendations in Chapter VI with regard to data on school activities are adopted, there will be at hand not only information which will supply the basis for improving methods of instruction and of adapting the course of study to the needs of the children, but also of judging of the efficiency of instruction and of the work of the system as a whole.

## CHAPTER V

### FINANCE AND ACCOUNTS

#### (I) COSTS OF THE SCHOOL SYSTEM COMPARED WITH THOSE OF OTHER CITIES

THE members of the Survey commission have spent much time in trying to calculate and compare the costs for education in the Butte school district with costs for education in other cities where costs are comparable, but they have finally been compelled to abandon the attempt to make an accurate comparison, for the reason that accurate comparisons are not possible with the present system of accounting.

#### DIFFICULTIES ENCOUNTERED IN COMPARING COSTS

In the first place the Butte school district (District No. 1) is many times larger than the city proper, and the property valuation of the school district is about twice that of the city itself. The total population within the city is given by the United States Census for 1910, and also has been officially estimated for 1911, but how many people live in the Butte school district the Survey commission were not able to ascertain. In the absence of such information the per capita cost for schools, based on the total population of the school district, could not be determined. On the basis of the expenditures for 1912-13, which were \$380,593.00, and an estimated total population in the school district of 75,000, the per capita cost, based on total population, would be approximately \$5.07.

In the absence of any population data, the commission have been compelled to use the figures given in the last printed volume of *Financial Statistics of Cities*, issued by the United States Bureau of the Census.<sup>1</sup> This contains

<sup>1</sup> *Financial Statistics of Cities*, 1911 (Washington, 1913).

detailed statistical data as to the expenses of all cities in the United States. The census figures show a total expense for 1911 of \$250,000 for education in Butte, and a per capita on total population cost of \$5.42. The members of the Survey commission have conferred with the clerk of the Board of School Trustees, the county assessor, and the county treasurer, but have not been able to arrive at any better estimate, though they feel that the United States Census figures for Butte are too high, for the year taken.

#### COMPARATIVE PER CAPITA COSTS

Using, however, for purposes of comparison, the United States Census figures, even though they are manifestly too high, and comparing the cost for education here with the cost in the same twenty cities used in Table VI, Chapter VI, in comparing the percentages of children under 15 years of age in such cities with conditions in Butte, we get the table on page 62, which shows comparative costs in ten Western and ten Eastern cities.

When the much higher costs for labor and materials in Butte, the materially lower pay for teachers in Eastern cities, and the much larger number of children to be educated in the ten Eastern cities, as pointed out in Chapter VI, are all taken into consideration, even the high United States Census figures for Butte seem low. It must be said, however, that of the cities selected for comparison with Butte, 75 per cent. are noted for the high quality and large efficiency of their schools. It would, of course, have been possible to select cities for comparison with Butte which would have resulted in a more favorable showing.

#### (2) COSTS AS SHOWN BY THE PRESENT SYSTEM OF ACCOUNTING

When the Survey commission turned from comparative costs to the cost of education in the schools within the dis-

trict, much the same difficulty in obtaining any information that really told anything was encountered.

TABLE IV

SHOWING COMPARATIVE COSTS FOR EDUCATION, BASED ON TOTAL POPULATION

Cities	Per Capita Cost for Schools	Per Cent. of City Expenses for Schools	Total Population of City
<b>1. Western Cities:</b>			
Pueblo, Colo.....	4.31	36.5 per cent.	44,395
Tacoma, Wash.....	5.20	33.9 per cent.	83,743
Lincoln, Neb.....	5.24	54.2 per cent.	43,973
San Diego, Cal.....	5.41	32.9 per cent.	39,578
BUTTE, MONT.....	5.42	31.8 per cent.	39,165
Davenport, Iowa.....	5.43	39.6 per cent.	43,028
Topeka, Kansas.....	5.47	47.0 per cent.	43,684
Spokane, Wash.....	5.80	38.0 per cent.	104,402
Salt Lake City, Utah.....	6.62	47.2 per cent.	99,777
Des Moines, Iowa.....	7.16	49.8 per cent.	86,368
Berkeley, Cal.....	7.51	54.0 per cent.	40,434
<b>2. Eastern Cities:</b>			
Fall River, Mass.....	4.06	34.4 per cent.	119,295
Scranton, Pa.....	4.45	47.2 per cent.	129,867
Hoboken, N. J.....	5.27	39.0 per cent.	70,324
BUTTE, MONT.....	5.42	31.8 per cent.	39,165
Bayonne, N. J.....	5.60	48.1 per cent.	55,545
East Orange, N. J.....	6.15	34.8 per cent.	34,371
Yonkers, N. Y.....	6.35	32.9 per cent.	79,803
Springfield, Mass.....	6.86	34.9 per cent.	88,926
New Rochelle, N. Y.....	7.04	37.5 per cent.	28,867
Mt. Vernon, N. Y.....	7.25	35.4 per cent.	30,919
Newton, Mass.....	8.67	35.8 per cent.	30,806

#### DEFICIENCIES OF THE FINANCIAL RECORDS

Though the financial records in the office of the School Clerk are kept according to the forms outlined for school districts in the state of Montana, the records are not kept in the form which should be provided for a city of this



size. The forms in use are suited to a country district or a village, rather than to a city such as Butte.

From the records as kept, though they are kept very neatly, and apparently very accurately, little or nothing could be told, without much labor in recalculating the items throughout, as to what instruction, operation of plant, and plant-maintenance were actually costing per pupil or per room in the schools of Butte. Some tabulations made, indicated differences as large as \$5.00 per year per pupil for instruction alone, in two of the schools. This may be all right or it may not, but the present methods of accounting do not tell anything as to existing conditions.

These differences are only what might be expected here. As is pointed out in the chapter on the school plant (Chapter III), small buildings are much more expensive to operate than large ones, and the instruction in them is less efficient. If good cost figures were available there is little doubt that the Board of School Trustees would at once abandon the policy of erecting them.

If figures were available it would doubtless be found that the per capita cost for education in such schools as the Brookside is twice as great as in such a school as the Emerson, with a much less efficient type of education provided, and that the cost in such schools as the Madison or Harrison is twenty to thirty per cent. higher than in the larger city schools. The books at present show almost nothing as to the actual costs for instruction in the schools, or in different schools, and the Survey commission have been compelled to depend, in part, in making their recommendations for the reorganization of the building equipment of the district, on their knowledge of the financial experiences of other cities having somewhat similar conditions. No one in particular is to blame for the present condition, as the books are kept according to state forms and according to the plan which has been followed for many years.

## RECOMMENDATIONS

The Survey commission strongly recommend that the School Clerk be instructed to prepare a new form of cost-record book, using the standards for accounting approved by the United States Bureau of Education and the United States Bureau of the Census, and that he then reorganize his methods of cost accounting so that each item of expenditure will be distributed, in its proper place and proper proportion, among the different schools and administrative offices of the district. We herewith append a form (Form 8) showing the kind of bookkeeping which the commission recommends.

With such a system of bookkeeping it would, at any time, be possible to determine the per-pupil cost for instruction, the per-room cost for any form of service or supply, or the per-building cost for any item of maintenance or upkeep, and to check wastes wherever they may be found. The Survey commission have been led to feel that there are many small wastes in the school system which could be remedied, to the advantage of the schools, if only a good accounting system were in use from which the School Clerk or the Superintendent of Schools, or the two acting in coöperation, could from time to time check up the different cost items for the different schools. If such figures were available, to mention one item to illustrate the value of such accounting, the Survey commission have no doubt that the present practice of building small schools, near together, would be at once discontinued, because of the greater cost for instruction and maintenance which would be shown by such a system of accounting.

The Survey commission wish to add that they have gone over the matter in some detail with the School Clerk, and have pointed out to him the value of such a system of bookkeeping and standard-form accounting, and that he is both willing and anxious to reorganize the books according to the standard forms and individual school-record plans suggested to him, and as shown by Form 8.

PART II

**The Instructional Problem**



## CHAPTER VI

### THE CLASSIFICATION AND PROGRESS OF PUPILS

THE population of the city of Butte, as given in the census of 1910, was 39,165. School District No. 1, comprising a larger area than the city, has a population estimated at from 70,000 to 75,000. While there are no available data on the character of the population of District No. 1, this probably differs little in character from the population of the city.

#### CHARACTER OF THE POPULATION OF BUTTE

The population of the city of Butte is characterized by the large percentage of native born with one or both parents foreign born, by the large percentage of foreign born, by the small percentage of school children in proportion to the population, by the large percentage of active adult population between 25 and 40, and by the small percentage of mature citizens 65 years of age and older.

Table V (page 68) shows the composition of the population of certain Western cities, chosen for comparison with Butte. The particular character of the population is made clearer by Figure 9 (page 69).

Seventy per cent. of the population of Butte, it will be observed, is of direct foreign descent or foreign born. An analysis of this foreign element shows that it is, on the whole, of the very highest type, coming primarily from northern and western Europe. Nevertheless, the presence in the city of so many of foreign descent and birth makes the work of the schools especially difficult, and makes

TABLE V  
COMPOSITION OF POPULATION

City	Population, Census 1910	Per Cent. of the Whole Who Are			Negroes
		Native Born of Native Parents	Native Born with One or Both Parents Foreign Born	Foreign Born	
BUTTE, MONT.....	39,165	28.5	37.3	32.9	.6
San Diego, Cal.....	39,578	57.0	21.0	18.0	1.5
Berkeley, Cal.....	40,434	48.2	29.2	18.9	.6
Davenport, Iowa.....	43,028	41.1	38.7	18.8	1.3
Topeka, Kan.....	43,684	63.6	16.4	9.5	10.4
Lincoln, Neb.....	43,973	59.2	22.7	16.4	1.7
Pueblo, Colo.....	44,395	55.4	22.0	18.8	3.4
Sacramento, Cal.....	44,696	44.3	29.1	19.9	1.1
Sioux City, Iowa.....	47,828	46.8	30.6	21.9	0.6
Tacoma, Wash.....	83,743	43.6	28.5	25.6	0.9
Spokane, Wash.....	104,402	52.3	26.1	23.0	0.7

necessary certain adjustments in the school system to meet the particular educational needs of this portion of the population. The needed readjustments in courses of study, and needed provisions for special kinds of classes and schools, will be pointed out in the subsequent chapters of this report.

While the number of children of school age in Butte compares favorably with other Western cities, the number is materially smaller than in Eastern cities of similar size. Table VI compares Butte with ten selected Western and ten selected Eastern cities, in the matter of children under 15 years of age.

Figure 10 (page 71) compares the age distribution of the population of Butte with the age distribution of the United States as a whole.

Table VI (page 70) shows that the predominant age in Butte is between 25 and 44. Its adult population is, there-

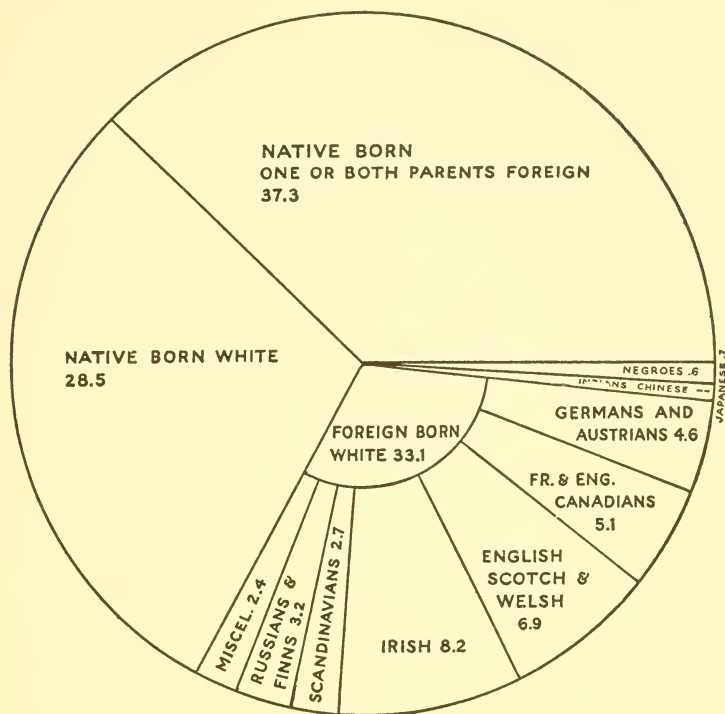


FIG. 9. COMPOSITION OF THE POPULATION OF BUTTE

fore, at the age of greatest strength and aggressiveness. It will, however, be noted on the other hand that but 15.1 per cent. of the population is between 5 and 14 years of age, as compared to 17.4 per cent. for the country as a whole. This relatively small proportion of children of school age, when compared with Eastern cities and when compared with the country as a whole, should enable Butte to provide much better educational advantages for its children than can be provided by the average city, particularly of the East.



TABLE VI  
PERCENTAGE OF CHILDREN TO POPULATION

City	Total Population, 1910	Per Cent. of Children	
		5-14	0-15
1. <i>Western Cities:</i>			
Spokane, Wash. <sup>1</sup> .....	104,402	13.0	23.2
San Diego, Cal. <sup>1</sup> .....	39,578	13.4	20.0
Berkeley, Cal. <sup>1</sup> .....	40,434	14.7	22.8
BUTTE, MONT.....	39,165	15.1	23.9
Tacoma, Wash.....	83,743	15.2	23.6
Lincoln, Neb.....	43,973	15.3	25.2
Topeka, Kan. <sup>1</sup> .....	43,684	15.5	23.9
Pueblo, Colo.....	44,395	16.4	26.2
Des Moines, Iowa <sup>1</sup> .....	86,368	16.6	25.6
Davenport, Iowa <sup>1</sup> .....	43,028	16.7	25.1
Salt Lake City, Utah <sup>1</sup> .....	92,777	18.5	29.6
2. <i>Eastern Cities:</i>			
East Orange, N. J.....	34,371	15.1	23.1
BUTTE, MONT.....	39,165	15.1	23.9
Springfield, Mass. <sup>1</sup> .....	88,926	15.9	25.3
Newton, Mass. <sup>1</sup> .....	39,806	16.7	25.4
Scranton, Pa.....	129,867	18.1	32.0
Fall River, Mass.....	119,295	18.2	32.3
New Rochelle, N. Y. <sup>1</sup> .....	28,867	18.9	29.7
Yonkers, N. Y. <sup>1</sup> .....	79,803	18.9	29.9
Hoboken, N. J.....	70,324	19.1	29.2
Mt. Vernon, N. Y. <sup>1</sup> .....	30,919	21.6	31.6
Bayonne, N. J. <sup>1</sup> .....	55,545	21.7	33.6

The city of Butte, or School District No. 1, is, therefore, called upon to develop a system of schools adapted to the needs of a population predominantly foreign, and engaged in skilled and manual occupations. By reason, however, of the active and aggressive character of its adult population, and the relatively small number of children of school age, the city of Butte should be able, without great financial burden, to provide the very best educational opportunities for the children of the city, and for all adults desirous of continuing their education.

<sup>1</sup>All these cities spend more for schools, per capita of the total population, than does Butte. See Table IV, Chapter V.

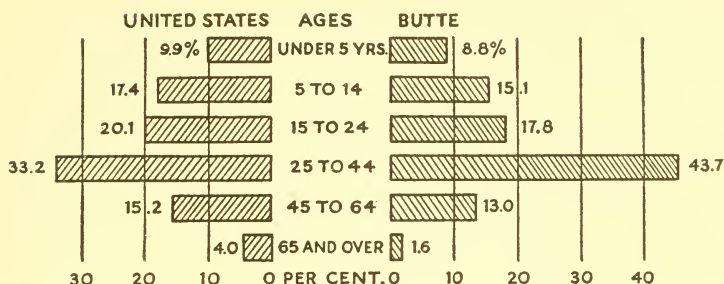


FIG. 10. AGE DISTRIBUTION OF TOTAL POPULATION

# SCHOOL POPULATION OF DISTRICT NO. 1 (SCHOOL CENSUS, 1913)

The school census of 1913 for District No. 1 gave the number of children and youth as follows:

Under 6 years of age.....	6,155
Between 6 and 8 years.....	2,019
Between 8 and 14 years.....	5,330
Between 14 and 16 years.....	1,418
Between 16 and 21 years.....	3,082
Total (all children under 21 years).....	18,004

While there are, according to the school census of 1913, 18,004 children and adults under 21 years of age in the district, there is no reason to expect that this entire number will be found in school. The legal age of entrance to the public schools is 6; the Compulsory Education Law, however, is operative only after children become 8 years of age, and they cannot be held in school after becoming 16 years of age. There are, however, reasons to expect that practically all children between 6 and 14 will be in school, also a large majority of those between 14 and 16, and a considerable part of those between 16 and 21.

The enrollment in the Butte public schools in the first semester of the school year 1913-14 was as follows:

TABLE VII  
PUBLIC SCHOOL ENROLLMENT VERSUS SCHOOL CENSUS

Ages	Public Schools <sup>1</sup>	School Census	Per Cent. in Public Schools
Between 6 and 8.....	1,619	2,019	79.40
Between 8 and 14.....	3,996	5,330	75.00
Between 14 and 16.....	643	1,418	45.00
Between 16 and 21.....	55	3,082	1.80
Enrolled in High School.....	727	.....	.....
Total.....	7,040	11,849	59.60

Neither are the data on the enrollment in the public schools of Butte sufficiently complete (the age distribution of the enrollment in the high school being lacking), nor are the data of the school census sufficiently differentiated with respect to age, to make possible a complete comparison between school enrollment and school census. Such a comparison should, however, be possible, and should be made each year in order to determine to what extent the public schools are reaching all of the children of school age of the city, and at what point or points the public schools break down. The necessity of so modifying the school census, and of collecting the needed data on school enrollment in order that such comparisons can be made, are treated in Chapter IV.

Comparison, however, can be made with the data at hand between the enrollment and school census in the case of two age-groups; that is, between the enrollment and census for children between 6 and 8, and between 8 and 14. It will be observed that of the 2,019 children reported in the census as between 6 and 8, 1,619, or 79.4 per cent., were enrolled in the public schools, and that of the 5,330 children reported in the census between 8 and 14, 3,996, or 75 per cent., also were enrolled in the public schools.

<sup>1</sup> Exclusive of 22 under 6.

The practical question, from this point of view, is, where were the remaining 20.6 per cent. of children between 6 and 8 years of age, and the remaining 25 per cent. between 8 and 14? To be sure, a large proportion of such children were doubtless enrolled in either parochial or private schools. There are, however, no available facts at hand to show the number of such children so enrolled. All that is known is that the public schools of Butte are reaching from 75 to 79 per cent. of the children of the city between 6 and 14, and a certain number of children of other ages. So long, therefore, as private and parochial schools are not required to report to the clerk of the Board of School Trustees, as is required by law (see Section 1104 of the General School Law of the State of Montana), and data are not collected by ages on the enrollment in the public elementary and the public high school, so long will it be impossible to determine whether or not all the schools of Butte combined, public, private, and parochial, are reaching all the children of school age of the community.

#### THE HOLDING POWER OF THE BUTTE PUBLIC SCHOOLS

An efficient system of public schools not only attracts or reaches all the children of the community, but also holds them either until they are no longer subject to the Compulsory Education Law, or until they have completed either the elementary school course of study or the course of study of both the elementary and high school.

While each separate school keeps fairly complete and accurate records of all pupils entering and of all pupils dropping out, these records have never been systematized and collected for the system as a whole to show to what extent and how long children are held in the schools. Effort has lately been put forth to this end, in the adoption of an "Admission, Discharge, and Promotion Card." This is an excellent movement and is to be highly commended. If these records are carefully kept, and the data thereon

tabulated, there will soon be at hand means of judging of the holding power of the Butte public schools.

Despite the absence, until recently, of systematic records, we have collected data which show that considerable numbers of children drop from the public schools during the course of a term; also data which tend to show that the holding power of the Butte public schools is reasonably good. Table VIII shows the number of children dropped from the elementary schools during the first semester of the school year 1913-14:

TABLE VIII  
CHILDREN DROPPED FROM ELEMENTARY SCHOOLS

Year	Total Enrollment	Going to Private or Parochial Schools	Leaving City	Dropped because of Absence	Total Dropped	Per Cent. of Enrollment Dropped
Eighth.....	397	6	10	29	45	11.3
Seventh.....	547	8	18	21	47	8.6
Sixth.....	703	9	35	25	69	9.8
Fifth.....	782	9	29	20	58	7.4
Fourth.....	847	13	54	12	79	9.3
Third.....	921	14	47	19	80	10.6
Second.....	868	11	50	13	74	8.5
First.....	1259	15	57	56	128	10.2
Total...	6324	85	300	195	580	9.2

Five hundred and eighty children were dropped from the elementary school, it will be noted, during the first semester of the school year 1913-14, out of a total enrollment of 6,324; that is, almost one pupil out of each ten enrolled left before the end of the first semester. To be sure, the public schools are not to be held responsible for pupils leaving, by reason of parental preference for private or parochial schools, or for pupils leaving when parents move from the city, or when pupils are continuously absent

for lawful reasons. School authorities are, however, responsible for seeing that when a child leaves for a parochial or private school, he actually enters such school; responsible for seeing that when a child reports his parents as moving from the city, this is actually the case; and responsible for seeing that all cases of continuous absence are lawful. It should, however, be said that teachers, principals, and attendance officers are giving much attention to such cases; yet, as will be pointed out in connection with our discussion of the enforcement of the Compulsory Education Law, there is considerable to be desired with respect to the method of reporting, investigating, and recording the results of investigating such cases, to the end that no child shall drop from school without lawful reasons.

Notwithstanding children for various reasons drop from the public schools of Butte, the data presented in Table IX indicate that the holding power of the schools is reasonably good:

TABLE IX

AGE DISTRIBUTION OF CHILDREN IN ELEMENTARY SCHOOLS

Age	Number Enrolled of Each Age	Per Cent. of Total Enrollment of Each Age
Under 6.....	22	0.03
6 to 7.....	912	14.40
7 to 8.....	707	11.20
8 to 9.....	702	11.10
9 to 10.....	726	11.50
10 to 11.....	642	10.30
11 to 12.....	662	10.50
12 to 13.....	671	10.60
13 to 14.....	593	9.40
14 to 15.....	415	6.60
15 to 16.....	228	3.60
16 to 17.....	44	0.06
17 to 18.....	9	0.01
18 to 19.....	2	0.005
Total.....	6,337	99.305



These several age-groups, at least from 6 to 7 up to 13 to 14, should be essentially equal, the younger age-groups, due to growth in population, being somewhat larger than the older. The preponderating number of pupils reported between 6 to 7 is in all probability due to the fact that pupils, in considerable numbers, are actually entering school who, while giving their age as between 6 and 7, are really under 6. Beginning with the group between 7 to 8, it will be noted that there is but slight difference, from group to group, until we come to the group 13 to 14. On becoming 14 years of age, children who wish to do so, and who can qualify for the examination for an employment certificate, drop from school, as do those who complete the course. These two factors account, therefore, at least in part, for the decreasing number in the age-groups after 13 to 14.

The uniformity in the number in each of the several age-groups up to the group 13 to 14 may thus be taken to indicate that the holding power of the public schools is reasonably good. But, as suggested above, just what their holding power is cannot be determined with exactness until there is a decided change in the reports of the schools concerning the enrollment and discharge of pupils.

#### THE PROGRESS OF CHILDREN IN SCHOOL

The elementary-school course of study is, in theory, eight years in length, and the high-school course four years. A child entering the elementary school at 6 years of age should complete the elementary school in eight years, or by the time he is 14 years old; similarly, a child entering at 7 should be graduated at 15. Hence, if the age of a child and the grade he has completed or is beginning is known, it is possible to tell how far ahead or how far behind the course he is for his age.

It is commonly agreed that the very latest normal age for completing the elementary school is up to 15. Children



completing the elementary course older than this are called over-age, or behind their grade. In order, therefore, that children progressing, regularly, through the grades may complete the elementary school by the time they are 15, it is necessary for them to enter or begin the work of each of the several grades within the following age limits:

Grade	Normal Age Limit for Entering	Normal Age Limit for Completing
1 B.....	6 up to 7	6½ up to 7½
1 A.....	6½ up to 7½	7 up to 8
2 B.....	7 up to 8	7½ up to 8½
2 A.....	7½ up to 8½	8 up to 9
3 B.....	8 up to 9	8½ up to 9½
3 A.....	8½ up to 9½	9 up to 10
4 B.....	9 up to 10	9½ up to 10½
4 A.....	9½ up to 10½	10 up to 11
5 B.....	10 up to 11	10½ up to 11½
5 A.....	10½ up to 11½	11 up to 12
6 B.....	11 up to 12	11½ up to 12½
6 A.....	11½ up to 12½	12 up to 13
7 B.....	12 up to 13	12½ up to 13½
7 A.....	12½ up to 13½	13 up to 14
8 B.....	13 up to 14	13½ up to 14½
8 A.....	13½ up to 14½	14 up to 15

If, then, the ages of all the children enrolled in the public schools of Butte during the first semester of the school year 1913-14 are taken as of September 1, and the above-normal age limits for entering each of the grades is taken as the basis of classification, the number of children in each grade under age, that is, ahead of their grade, the number of normal age, that is, up to grade, and the number over-age, that is, behind their grade, is easily determined.

#### AMOUNT OF OVER-AGE

Table X gives the number of children in each of the several grades of the public schools of Butte, from under

TABLE X  
AGE-GRADE DISTRIBUTION OF ELEMENTARY-SCHOOL PUPILS

Grade	Under 6	6 - 6½	6½ - 7	7 - 7½	7½ - 8	8 - 8½	8½ - 9	9 - 9½	9½ - 10	10 - 10½	10½ - 11	11 - 11½	11½ - 12	12 - 12½	12½ - 13	13 - 13½	13½ - 14	14 - 14½	14½ - 15	15 - 15½	15½ - 16	16 - 16½	16½ - 17	17 - 17½	17½ - 18	18 - 18½	18½ - 19	Total En- rollment for First Semester
1 B..	22	540	159	105	38	15	8	5	2	2	1	1	1	1	2				1								898	
1 A..	30	98	118	76	76	30	18	9	5	1	1	3	3	2	1												388	
2 B..	17	65	133	102	102	77	69	10	16	7	2	6	1	2	1	2			2		1	3	1	1			508	
2 A..		2	27	58	58	84	74	56	28	29	14	6	2	7	3	3	1	4	1	2							390	
3 B..		1	11		35	89	115	125	67	51	19	20	13	14	7	11	7	3	5	1							556	
3 A..					4	24	59	81	63	55	30	26	41	17	20	11	7	2	2	1	1						387	
4 B..						5	30	59	93	67	18	41	53	28	32	14	7	2	2	3	2	1		1		1	445	
4 A..						2	2	23	42	56	37	53	64	45	38	20	18	8	4	5	2	2	1		1		346	
5 B..								10	25	13	45	74	64	45	35	30	32	12	11	5	5		1				444	
5 A..								1	6	17	54	54	55	44	42	32	32	35	18	11	12	1	1				346	
6 B..										3	17	40	40	56	48	51	28	37	19	14	7	6		1	1		386	
6 A..										1	4	13	41	41	65	47	49	40	31	19	14	3					332	
7 B..											2	2	11	11	32	33	32	32	39	19	6	4	1	1	1		328	
7 A..													9	9	21	28	38	35	26	21	23	4	2			1	214	
8 B..																9	28	20	32	38	17	10	3	2			210	
8 A..																											159	
Total	22	587	325	394	313	326	376	379	347	382	260	348	314	327	344	312	281	224	191	139	89	35	9	6	3	1	1	6,337

6 up to 18½ to 19. In each grade, the numbers in the columns to the left of the heavy black-faced figures indicate the children ahead of their grade, the numbers set in heavy-faced black type indicate the children up to grade, and the numbers in the columns to the right of the heavy black-faced figures indicate the children behind their grade.

Table XI shows more clearly than Table X the number of children in each grade in the elementary schools of Butte under age, normal age, and over age:

TABLE XI

NUMBER AND PER CENT. OF CHILDREN UNDER AGE, NORMAL AGE, AND OVER AGE

Grade	Under Age		Normal Age		Over Age		Total Reported in Grade
	Number	Per Cent. of Total in Grade Under Age	Number	Per Cent. of Total in Grade Normal Age	Number	Per Cent. of Total in Grade Over Age	
1 B.....	22	2.4	699	78.3	177	19.7	898
1 A.....	30	7.7	216	55.7	142	36.6	388
2 B.....	82	16.3	235	46.3	191	37.5	508
2 A.....	29	7.4	142	36.4	219	56.2	390
3 B.....	47	8.4	204	36.7	305	54.9	556
3 A.....	28	7.2	140	36.2	219	56.6	387
4 B.....	35	7.9	152	34.2	258	58.0	445
4 A.....	27	7.8	109	31.5	210	60.7	346
5 B.....	35	7.9	127	28.6	282	63.6	444
5 A.....	21	6.6	99	28.4	226	65.3	346
6 B.....	20	5.2	105	27.4	261	67.6	386
6 A.....	21	6.3	88	26.5	223	67.2	332
7 B.....	19	5.8	106	32.3	203	61.9	328
7 A.....	13	6.2	65	30.4	136	63.6	214
8 B.....	30	14.3	68	32.4	112	53.4	210
8 A.....	9	5.6	48	30.2	102	64.1	159
All grades.....	468	7.4	2,603	41.1	3,266	51.0	6,337

It is astonishing to find that, of the total number of different pupils in the elementary schools during the first

semester of the current school year, only 468 were ahead of their grade, as compared to 3,266 who were behind. In a word, taking the enrollment as a whole, out of each 100 children:

8 are ahead of their grade,  
41 are up to grade, and  
51 are behind their grade.

Conditions are the worst in the 6 B grade, where out of each 100 children:

5 are ahead of their grade,  
27 are up to grade, and  
68 are behind their grade.

While conditions are the worst in the 6 B, even in all the other grades, with the exception of the 1 B, the per cent. of over-age children is extraordinarily high, ranging from 36.6 per cent. to 67.2 per cent.

The conditions shown to exist in Tables X and XI are shown even better in Figure 11, on the opposite page.

#### DEGREE OF OVER-AGE

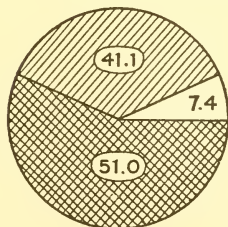
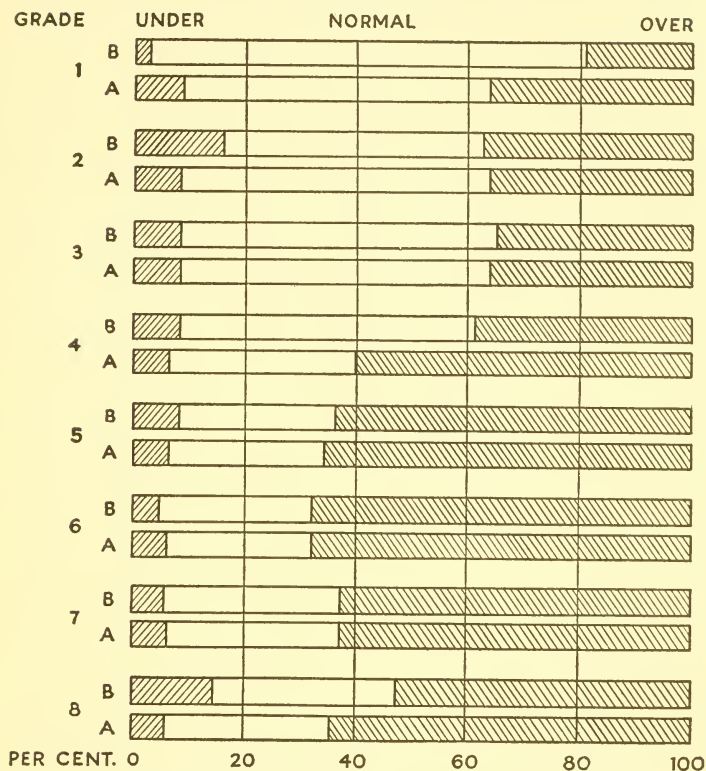
The seriousness of children becoming over-age depends on the grade they are in, and on how far they have fallen behind their grade. Table XII (page 82) shows, by grades, the number of children over-age a given number of years.

It will be observed that of the 3,266 children over-age

1,790 are less than 1 year behind their grade,  
891 are 1 and less than 2 years behind their grade,  
386 are 2 and less than 3 years behind their grade,  
199 are 3 years or more behind their grade.

The significance of these children being behind their grade lies in the fact that if the 1,790 less than 1 year over-age continue in school and advance regularly they will be between 15 and 16 on completing the elementary school;

PERCENTAGES OF PUPILS WHO ARE  
UNDER AGE, OF NORMAL AGE, AND OVER AGE



TOTAL, ALL GRADES :  
 UNDER AGE 7.4  
 OF NORMAL AGE 41.1  
 OVER AGE 51.0

FIG. 11. AGE DISTRIBUTION BY GRADES

TABLE XII  
DEGREE OF OVER-AGENESS

Grade	Under Normal Age		Of Normal Age	Over Normal Age					Total
	1 Year and More	Less than 1 Year		Total Under Age	Less than 1 Year	1 Year and Less than 2	2 Years and Less than 3	3 Years or More	
1 B.....		22	699	22	53	13	4	2	898
1 A.....		30	216	30	106	27	6	3	388
2 B.....		82	235	82	146	26	9	10	508
2 A.....		29	142	29	130	57	20	12	390
3 B.....	1	46	204	47	192	70	22	21	556
3 A.....		28	140	28	118	56	27	18	387
4 B.....		35	152	35	115	82	37	24	445
4 A.....	2	25	109	27	90	60	42	18	346
5 B.....		35	127	35	138	83	38	23	444
5 A.....	2	19	99	21	96	65	44	21	346
6 B.....		20	105	20	98	87	50	26	386
6 A.....	1	20	88	21	111	65	33	14	332
7 B.....	2	17	106	19	96	71	33	3	203
7 A.....		13	65	13	65	58	10	3	328
8 B.....		30	68	30	61	44	6	1	210
8 A.....		9	48	9	70	27	5	0	159
Total.....	8	460	2,603	468	1,790	891	386	199	6,337

**PERCENTAGES OF 3,266 OVER-AGE PUPILS WHO  
ARE BEHIND THEIR GRADES**

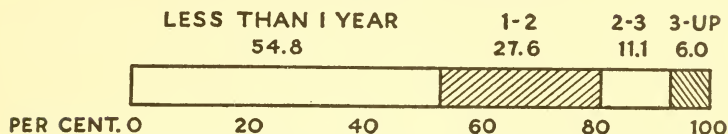


FIG. 12. PERCENTAGES OF PUPILS ONE OR MORE YEARS BEHIND THEIR GRADES

the 891 who are 1 year and less than 2 years over-age will be between 16 and 17; the 386 who are 2 years and less than 3 years over-age will be between 17 and 18; while the 199 who are 3 years or more over-age will be between 18 and 19. As a matter of fact, in all probability the majority of these children will never complete the elementary school, but will drop out somewhere in the 6 B or higher grades.

#### SIGNIFICANCE OF OVER-AGE

The significance of over-age does not lie entirely in the fact that these children will probably leave the elementary school before completing the course, but lies more particularly in the fact that, while they do remain in school, the instruction received will not be adapted to their abilities. Hence such children, on the one hand, do not receive the full benefits from the instruction given them; on the other hand, being thus improperly classified, they are a burden to the teacher, and prevent her from giving the proper attention to the other members of the class in which these over-age children are to be found. In a word, it is impossible for a teacher to do good work in a 4 B class, if along with the 4 B children of normal age, that is, children from 9 to 10, there are children 13, 14, 15, and even 18 years old. Hence, over-age is not only significant for the children who themselves are over-age, but over-age becomes significant for all members of the school.

Moreover, over-age in the elementary school not only



affects the work of the school, but affects the number of children going to high school and the number remaining to complete the high-school course. Were data at hand it could be clearly shown that a smaller per cent. of over-age children go to high school than of normal or under normal age. Table XIII gives the age of the children entering the high school during 1913-14:

TABLE XIII

AGE OF ENTRANCE TO HIGH SCHOOL—SCHOOL YEAR 1913-14

$11\frac{1}{2}$ to 12	12 to $12\frac{1}{2}$	$12\frac{1}{2}$ to 13	13 to $13\frac{1}{2}$	$13\frac{1}{2}$ to 14	14 to $14\frac{1}{2}$	$14\frac{1}{2}$ to 15	15 to $15\frac{1}{2}$	$15\frac{1}{2}$ to 16	16 to $16\frac{1}{2}$	$16\frac{1}{2}$ to 17	17 to $17\frac{1}{2}$	$17\frac{1}{2}$ to 18	18 to $18\frac{1}{2}$
1	—	1	3	19	36	44	41	43	26	17	6	6	1

Total entering, 244

Total of Normal Age, 41

Total entering Under Age, 104

Total entering Over Age, 99

If 15 to  $15\frac{1}{2}$  is taken as the normal age of entrance, it will be observed that of the 244 pupils entering the high school, 104 entered under age, 41 were of normal age, and 99 were over-age. There can be little question that a considerable portion of these 99 pupils, particularly those that are 1 to 2 years over-age, will drop from the high school before completing the course. Hence, were children graduated from the elementary school earlier, there is little doubt that they would enter the high school in greater numbers, and that greater numbers would remain to complete the course.

## CAUSE OF OVER-AGE

Why are 50 per cent. of the children in the elementary schools of Butte over-age? Over-age may be due to two main factors: (a) either to late entrance to school, or (b) to failure to progress regularly after entrance to school, or (c) to both late entrance and failure to progress regularly.

The facts at hand indicate that over-age in the elementary schools of Butte is not due to late entrance to school. This is revealed by the fact that in the 1 B grade only 19.7 per cent. of the children are over-age, whereas 78.3 per cent., despite the extraordinarily high per cent. of non-promotion (see Table XIV), are of normal age and 2.4 per cent. are under age (see Table XI). Indeed, the distribution by ages (see Table X) indicates that children in large numbers are entering school even before they are 6 years of age, which tends to reduce rather than to augment over-age. In a word, over-age in the elementary schools of Butte is due to failure to progress regularly after entrance; that is, to the conditions found in the schools themselves.

#### SPECIAL CLASSES FOR BACKWARD CHILDREN

What, then, should be done in order that children in greater numbers may be able to progress regularly through the schools? Butte is not the only city in the country which has faced this problem. While the solution found differs from place to place, the principal means adopted are essentially the same everywhere; namely, the establishment of special types of classes.

There are in the elementary schools of Butte 199 children scattered from the 1 B to the 8 B grade who are 3 years and more behind their grade. In the state of New Jersey there is a law which makes it compulsory on boards of education to form special classes for all children three years or more over-age. Classes for such children are small, the number enrolled not exceeding 15 to 20 pupils. Children 3 years and more over-age will, as a rule, be found to be mentally defective. It would seem wise, therefore, that at least an examination be made of this entire group of over-age children, and, for those found to be defective, that special ungraded classes be formed. There would probably be need for from 6 to 10 such classes here.

For children less than 3 and more than 1 year over-age, of which there are in Butte 1,277 scattered throughout all the different grades, there have been established, in all progressive cities, what are known as classes or schools for backward children. Where such backward classes have been established there is generally one such class in each school, and into this class are brought all children 2 or more years over-age. The purposes of such classes are twofold. First, for the younger children, the object of such a class is so to instruct them that they may make up the major portion of lost time, and ultimately graduate from the regular course. Second, for the older children, who still are in the lower grades, the purpose of such a class is so to modify the course of study that these children may receive the kind of instruction which will later be most useful to them. No effort is made to return these pupils to regular classes, for experience has shown that they seldom, if ever, remain to complete the regular course.

The preferable method of caring for backward children, however, is to bring all such children into one central school. This makes possible a better classification and graduation, and a better modification of instruction to the particular needs of given groups of children. Such a central school has the same twofold aim as the single class.

Whether the school authorities of Butte decide to establish classes in the several schools, or to organize one central school, it would seem that there would be need in the city for not less than 12 to 15 such classes.

While it is not serious for children to be less than 1 year over-age, or even more than a year over-age, providing they are still in the lower grades, it, however, becomes serious for children in the upper grades. Among this group of children—namely, children less than 1 year and over 1 and less than 2 years over-age, of which there are over 2,500 in Butte,—there are probably individual cases which should have the advantage of the special attention to be received in a class or school for backward

children. Many of these children, however, have the ability, providing opportunities were offered, to do more than the regular work in the course. For such children there have been established, in all progressive cities, what is known as "rapid advancement classes." A number of such classes should be established in the schools of Butte. From the facts at hand, it would seem that there should be one or more such classes in each grade above the 1 B. If there are not sufficient children in one school to form such a class in a given grade, such children might be transferred temporarily to a neighboring school having such a class.

#### ELEMENTARY SUMMER SCHOOLS

A further means of enabling backward children of whatever degree of over-ageness to gain more nearly a complete elementary education is the establishment of summer schools for backward children. Such summer schools are not play schools, but places for serious work, where children are able either to make up the work in certain subjects in which they have failed, thereby receiving the promotion denied them at the end of the school year, or where they are able to do an entire term's work. Climatic conditions are most favorable in Butte for the establishment of such a summer school. If such a school were established, it would merely be extending to the elementary-school pupils advantages already offered to high-school pupils.

The establishment of special classes for defective children, the establishment of special classes or a central school for backward children, the organization of rapid advancement classes, and the organization of a summer school, would all tend to reduce the amount of over-age, because these special classes and schools afford children additional opportunities to do the prescribed work, or the opportunity to do this work under more favorable conditions than at present.

It might be thought that the formation of these special classes would entail material cost. It must be remembered, however, that these children are already in the schools and are being instructed at a great disadvantage, whereas if they are segregated and given special opportunities, not only is the education received by them more beneficial, but many of them will be able to complete the elementary school, and thus shorten the number of years they are actually instructed. In a word, experience has shown that whereas the direct cost of establishing such classes is considerable, the ultimate cost is immaterial. In addition, the segregation of this group of children makes more favorable the working conditions in regular classes for normal children.

#### RATE OF PROMOTION AND NON-PROMOTION

Equally as fundamental in reducing the amount of over-age in the elementary schools of Butte is the necessity of reducing the present high rate of non-promotion, for the direct cause of children falling behind their grade is their failure to be advanced regularly; hence the significance of non-promotion. Table XIV gives, by grades, the number of children promoted, the number not promoted, and the per cent. of non-promoted for the first semester of the current school year.

It will be observed that out of 5,744 pupils in all the grades at the end of the first semester of the current school year, 1,040 failed of advancement, or 18 per cent. It will also be observed that the per cent. of non-promotion varies from 7 per cent. in the 8 A grade to 29 per cent. in the 1 B grade.

#### REDUCING NON-PROMOTION

The first step in lowering the present high rate of non-promotion is to standardize better the requirements of the several grades. These requirements should be equal, that is, adapted to the abilities of the children. There is no

TABLE XIV  
PROMOTION AND NON-PROMOTION

Grade	Total Enrollment for Semester	Number in Class at end of Semester	Number in Class at End of Semester		Per Cent. of Non-Promotion on Basis of Number at End of Semester
			<i>a</i> Promoted	<i>b</i> Not Promoted	
8 A.....	177	152	141	11	7
8 B.....	220	200	170	30	15
7 A.....	214	199	151	48	24
7 B.....	333	301	241	60	19
6 A.....	333	297	248	49	16
6 B.....	370	337	275	62	18
5 A.....	348	322	272	50	15
5 B.....	434	402	350	52	12
4 A.....	371	342	300	42	12
4 B.....	476	426	353	73	17
3 A.....	384	349	313	36	10
3 B.....	537	492	403	89	18
2 A.....	375	346	294	52	15
2 B.....	493	448	361	87	19
1 A.....	380	353	283	70	19
1 B.....	879	778	549	229	29
Total...	6,324	5,744	4,704	1,040	18

good reason why, for example, the rate of non-promotion in the 4 B grade should be 10 per cent. and in the 7 B grade 24 per cent. We would, therefore, recommend that data be collected at the end of each semester by schools and by grades, on the rate of promotion and non-promotion, and that these data be made the basis of discussing with principals and teachers in the several schools the reasons for variations in non-promotion standards, to the end that there may be uniformity of standards of non-promotion in the several schools and that the present high rate of non-promotion may be lowered.

It will be noted that the highest rate of non-promotion in any single grade is in the 1 B, 29 per cent.; that is, almost 1 child out of every 3 failed of advancement at the end of



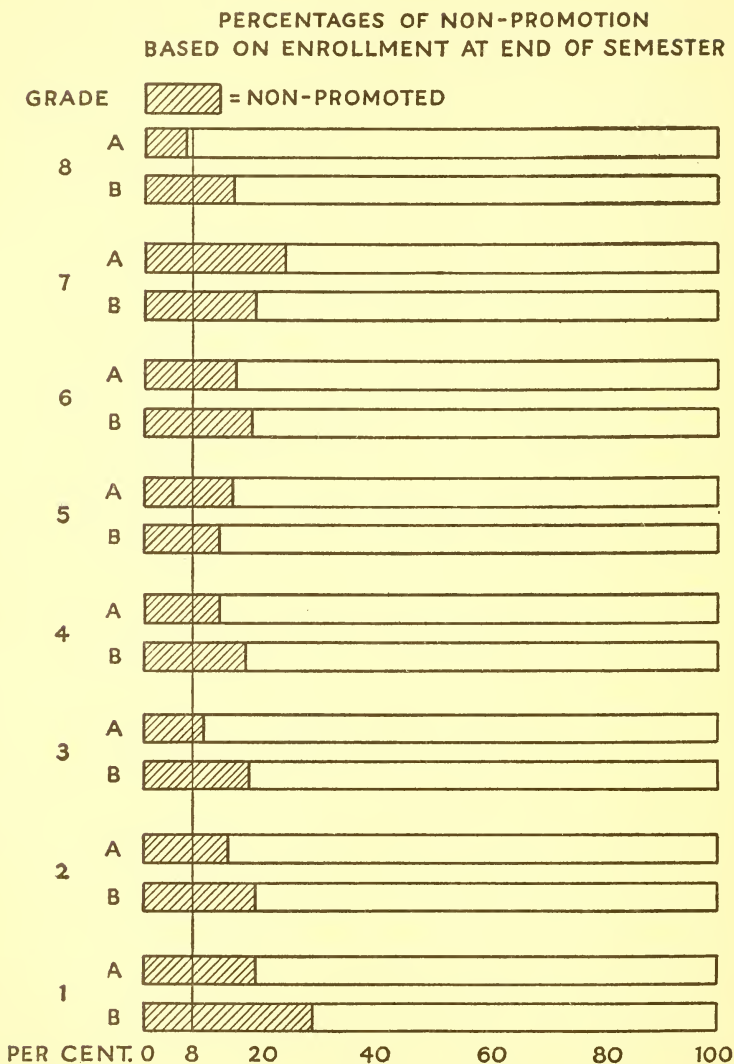


FIG. 13. THE LINE DRAWN AT 8% INDICATES A PROBABLE MAXIMUM NORMAL RATE OF NON-PROMOTION. ALL NON-PROMOTION TO THE RIGHT OF THE LINE IS EXCESSIVE.



the last semester. While there are other reasons for this high rate of non-promotion, one factor in bringing about this condition is the presence, in at least several schools in the city, of a large number of foreign-speaking children, to whom English is practically a foreign language. To meet similar conditions, progressive cities have formed what is known as "classes for non-English-speaking children." These classes are made smaller than the standard 1 B class. To them is assigned one of the best primary teachers in the building, and into the class are brought all children of the type in question. Such classes should be established in all schools of Butte where there is any considerable number of foreign-speaking children. The introduction of such classes alone would go far to reduce the present rate of non-promotion. While such classes would add to the direct expense of instructing primary children, facts are at hand to show that, when such classes are inaugurated, the rate of promotion among such children is so much higher that, in the last analysis, they are an economy.

Even more fundamental in reducing the present high rate of non-promotion than standardizing the requirements of the several grades, and the establishment of classes in the 1 B for non-English-speaking children, is the necessity of a fundamental change in the conception of what constitutes an elementary education. The prevailing conception here seems to be that the purpose of the elementary school is to instill into the minds of the children a given number of relatively isolated facts and formal definitions. Children who can master these facts and definitions and reproduce them are promoted. Those who are unable to do this are not promoted. Such a working conception of elementary education represses the natural abilities of the children and fails to appeal either to their imagination or to their reason. If school officials, principals, and teachers can come to see that the prime purpose of the elementary schools is to develop the natural tastes and abilities of children, to arouse their imaginations, to stimulate their

emotions, and to give them power to solve problems and to meet practical situations in life, the question of the right of children to advancement will not be based upon mastery of facts of a grade, but upon the ability to do work which lies ahead. On such a basis, teachers and principals would feel that they can advance a much larger per cent. of children than they do at the present time.

The question naturally arises, in this connection, what is the proper rate of promotion? Briefly answered, the requirements of the elementary-school course of study should be such that normal children, regular in attendance, should be able to complete the elementary-school course in at least 8 years, which means, when interpreted in terms of promotion, that if children are normal and regular in attendance the rate of promotion should be approximately 100 per cent.

#### FAILURES BY STUDIES

Whereas over-age results directly from failure to be advanced, non-promotion is due to children failing in certain branches of the course of study. Table XV gives, by grades, the number of children failing, at the end of the first semester of the current school year, in each of the several branches of the elementary school course.

It will be observed that the total failures in the several studies are by no means uniform, varying from 2 in sewing to 497 in arithmetic. On the basis of the number of children failed in the respective subjects, it is obvious that the requirements in these several subjects are unequal, and that these branches are not given equal place in the advancement of the children. The number of failures in arithmetic is the highest, and this subject is obviously given the first place in the course of study; reading, the second; language, the third; geography, the fourth; spelling, the fifth; physiology, the sixth; writing, the seventh; music, the eighth; United States history, the ninth; drawing, the

TABLE XV  
FAILURES BY STUDIES

Grade	Total Enrollment for Semester	Number in Class at End of Semester	Reading	Arithmetic	Language	Spelling	Geography	Physiology	U. S. History	Writing	Drawing	Music	Manual Training	Sewing
8 A.....	177	152	0	11	5	1	0	0	1	0	0	1	1	0
8 B.....	220	200	3	17	14	3	0	6	11	2	1	0	1	0
7 A.....	214	199	3	38	26	6	15	9	11	0	0	3	1	1
7 B.....	333	301	0	54	23	2	19	7	0	5	4	11	3	0
6 A.....	333	297	1	44	5	3	6	2	0	1	1	1	0	1
6 B.....	370	337	6	50	18	11	21	16	3	8	6	8	1	0
5 A.....	348	322	3	38	8	4	18	11	1	1	1	1	0	0
5 B.....	434	402	1	23	10	6	21	5	1	0	0	0	0	0
4 A.....	371	342	6	28	20	8	11	7	0	2	2	3	0	0
4 B.....	476	426	4	42	25	18	13	19	0	2	0	0	0	0
3 A.....	384	349	0	24	7	6	7	2	0	0	0	0	0	0
3 B.....	537	492	10	43	36	31	34	16	0	7	4	0	0	0
2 A.....	375	346	26	30	6	7	0	0	0	2	1	1	0	0
2 B.....	493	448	66	46	7	28	0	0	0	1	0	0	0	0
1 A.....	380	353	64	0	3	0	0	0	0	0	0	0	0	0
1 B.....	879	778	203	9	8	9	0	0	0	0	0	0	0	0
Total.....	6,324	5,744	396	497	221	143	165	100	27	31	20	29	7	2

tenth; manual training, the eleventh; and sewing, the twelfth.

Indeed, in view of the number of failures, it might be said that only reading, arithmetic, language, spelling, geography, and physiology play any material part in the advancement of children in the schools of Butte. While perhaps no one would contend that writing, drawing, music, manual training, and sewing should be given equal place with the other branches of the course of study, yet we believe it is equally wrong not to give these branches an important place in the education of children. Indeed, were this done, we believe that not only the rate of promotion

in the elementary schools in Butte would be increased, but the real value of the education given would be enhanced.

#### REDUCING THE NUMBER OF FAILURES

The differences in the number of failures in the several subjects that seemingly do actually count in the advancement of the children, raises the practical question why 497 children should be failed in arithmetic against 396 in reading, 221 in language, 165 in geography, 143 in spelling, and 100 in physiology. These differences also raise the question why the requirements in physiology should be such that 100 children are failed against 27 in United States history. In a word, these variations raise the question with regard to the requirements of the several branches of the course of study. Similar data, we believe, should be collected by schools and by grades, and these data be made the basis for discussion with principals and teachers, to the end that the requirements in the several studies may be adapted to the abilities of the children and made commensurate with the real importance of the respective subjects in the education of children.

#### SIZE OF CLASS IN ELEMENTARY SCHOOLS

While the progress of children through the schools is not as regular as it should be, and while there is great need of providing special classes for different groups of pupils, there are, notwithstanding, conditions in the schools of Butte which ought to contribute much to the regular advancement of pupils. Among such conditions is the size of classes.

In order that the very best work may be done, classes in the schools ought not to contain more than from 35 to 40 pupils. When classes are of this size, it is possible for the teacher to give the time and attention to pupils requisite to the achievement of the best results.

There were in the elementary schools of Butte, in the first semester of the current school year, 177 classes. Of these 177 classes, the average number belonging, that is, the daily average number for which a teacher is responsible, was as follows:

- 18 had an average belonging of less than 25.
- 39 had an average belonging of 25 and less than 30.
- 56 had an average belonging of 30 and less than 35.
- 45 had an average belonging of 35 and less than 40.
- 17 had an average belonging of 40 and less than 45.
- 2 had an average belonging of 45 and less than 50.

---

Total, 177

While 19 of the classes in the elementary schools exceeded the ideal number of 35 to 40, it may be said that there were but two over-large classes, the two having an average belonging of 45 and less than 50. We doubt whether such favorable class conditions are duplicated in any other city of similar size in the United States, and we heartily approve and commend the size of classes as found in the elementary schools of Butte.

#### SIZE OF SECTIONS IN THE HIGH SCHOOL

Similar favorable conditions exist in the high school with respect to the size of recitation sections. Recitation sections in a high school, it is generally agreed, ought not to contain more than from 25 to 30 pupils, if instruction is to be effective.

Table XVI (page 96) gives by subjects the number and size of the recitation sections in the Butte High School, as of February 27, 1914.

TABLE XVI  
NUMBER AND SIZE OF RECITATION SECTIONS

Subject	Number of Sections	Size of Section								Total No. of Pupils in All Sections	Average No. of Pupils per Section
		Under 11	11-15	16-20	21-25	26-30	31-35	36-40	41-45		
English.....	32	..	1	11	16	4	..	..	..	693	21.7
Elocution.....	7	2	2	3	..	..	..	..	..	96	13.7
Latin.....	15	1	6	8	..	..	..	..	..	227	15.1
German.....	7	1	4	2	..	..	..	..	..	97	13.9
French.....	5	3	2	..	..	..	..	..	..	49	9.8
Geology.....	4	..	..	1	1	2	..	..	..	96	24
Biology.....	2	..	..	2	..	..	..	..	..	38	19
Physics.....	4	..	1	..	2	1	..	..	..	87	21.7
Chemistry.....	4	1	1	..	2	..	..	..	..	62	15.5
Physiography....	5	..	..	2	3	..	..	..	..	102	20.4
Mathematics.....	26	..	1	15	8	2	..	..	..	515	19.8
History.....	14	2	2	2	4	2	1	..	1	286	20.4
Com'l Branches..	20	..	2	8	5	4	..	1	..	437	21.9
Stenography.....	6	1	2	1	1	1	..	..	..	105	17.5
Typewriting.....	6	..	2	1	3	..	..	..	..	114	19
Drawing.....	12	2	5	3	2	..	..	..	..	173	14.4
Mech. Drawing..	7	2	1	4	..	..	..	..	..	94	13.4
Wood Turning...	3	2	1	..	..	..	..	..	..	43	14.3
Joining.....	1	..	..	..	1	..	..	..	..	21	21
Forge Work.....	1	1	..	..	..	..	..	..	..	6	6
Machine Work...	3	3	..	..	..	..	..	..	..	22	7.3
Cooking.....	4	1	2	1	..	..	..	..	..	56	14
Sewing.....	5	2	1	2	..	..	..	..	..	67	13.4
Total Sections of Different Sizes...	193	24	36	66	48	16	1	1	1		
Per Cent. of Sections of Each Size.....		12.4	18.6	34.2	24.9	8.3	0.5	0.5	0.5		

Of the 193 recitation sections in the high school on February 27, 1914, there were sections having:

Under 11 pupils, 24 or 12.4 per cent.



11 to 15 pupils,	36 or 18.6 per cent.
16 to 20 pupils,	66 or 34.2 per cent.
21 to 25 pupils,	48 or 24.9 per cent.
26 to 30 pupils,	16 or 8.3 per cent.
31 to 35 pupils,	1 or 0.5 per cent.
36 to 40 pupils,	1 or 0.5 per cent.
41 to 45 pupils,	1 or 0.5 per cent.

There were, it will be observed, not to exceed three over-large sections in the entire school. The sections ranging from 21 to 30, 64 or 33.2 per cent. of the total number, fall within the standard limits or are of reasonable size, while all sections under 21, 126 or 65.2 per cent. of the total number, may be characterized as small.

In a cosmopolitan high school, such as that of Butte, by reason of the number of different courses offered, the number of different electives permitted, and the relatively small number of pupils in each of the several courses, a considerable number of small sections, especially in the upper classes, are inevitable. Whether or not there are an unnecessary number of small recitation sections in the high school, it is impossible for us to say. This much is, however, clear. In order that the number of small recitation sections may be kept at a minimum, special attention should be given to the technique of high-school program making.

In addition, the presence of such a large number of small sections makes clear the possibility of a considerable increase in the number of pupils in certain departments, without a corresponding increase in the number of teachers. This is particularly true in the case of Latin, German, French, in all of the sciences, and in the so-called industrial branches—mechanical drawing, wood turning, joinery, forge-work, machine-shop work, cooking, and sewing. In a word, the present enrollment of the high school in many departments could probably be increased by 50 per cent. without a material increase in the number of teachers and equipment.



## FAILURES BY STUDIES IN THE HIGH SCHOOL

The high-school course is, in theory, four years in length. When a student fails in a given branch, either this failure must be made up by taking extra work in a subsequent term, or the student, to graduate, must remain in high school longer than four years. To fail to complete the work in a subject within the prescribed time is, therefore, important both to the pupil and to the tax payer.

Table XVII gives, by studies, the failures in the high school during the first semester of the current school year.

It will be observed that the failures by studies range from 0 in penmanship to 32.65 per cent. in French, and that, while the average per cent. of failures in all studies is 10.77, there is no uniformity among the different studies in the per cent. of failures. The majority of failures are, however, in a few studies, such as Latin, German, French, physics, mathematics, stenography, and typewriting.

Why should the requirement be such in a study like economics that all pupils can carry the work, while the requirements are such that 32.18 per cent. fail in physics, 32.65 per cent. in French, 25 per cent. in Latin, 24.18 per cent. in German, and 18.63 per cent. in mathematics? Greater liberality can, doubtless, be shown in advancing children in a study which is given for one term only, as economics, than in a study like Latin which continues from term to term throughout the course, but why should the requirements be so different even in studies which continue from term to term, and which are assigned equal time-values in the course of study?

Such differences may be due to differences in the difficulty for the student of the subject matter presented, to differences in methods of teaching, or to differences in the standards of attainment held by different teachers. Whatever the cause, such data as the above should be collected for each term by subjects and teachers and be made the basis of discussion between principals and teachers, to the

TABLE XVII

FAILURES IN HIGH SCHOOL BY STUDIES

Study	Number in Class at End of Semester <sup>1</sup>	Number of Failures	Per Cent. of Failures
English . . . . .	625	34	5.41
Reading . . . . .	82	4	4.87
Latin . . . . .	208	52	25.00
German . . . . .	91	22	24.18
French . . . . .	49	16	32.65
Chemistry . . . . .	41	6	14.63
Physics . . . . .	87	28	32.18
Geology . . . . .	52	3	5.76
Physiography . . . . .	89	12	13.40
Biology . . . . .	29	0	0.00
Mathematics . . . . .	467	87	18.63
History . . . . .	242	17	7.02
Economics . . . . .	26	0	0.00
Commercial Law . . . . .	15	0	0.00
Commercial Arithmetic . . . . .	92	5	5.43
Spelling . . . . .	73	8	10.95
Commercial Geography . . . . .	29	1	3.45
Penmanship . . . . .	92	0	0.00
Bookkeeping . . . . .	100	0	0.00
Stenography . . . . .	97	17	17.52
Typewriting . . . . .	96	17	16.56
Free Hand Drawing . . . . .	164	2	1.22
Mechanical Drawing . . . . .	84	4	4.75
Manual Training . . . . .	81	10	12.34
Sewing . . . . .	55	0	0.00
Cooking . . . . .	41	0	0.00
Total . . . . .	3,107	335	10.77

end that methods of teaching may be improved and the requirements of each of the several studies be better standardized,—that is, made commensurate with the importance of the study in the education of children. Unless that is done, the advancement of children is conditioned very

<sup>1</sup>Number in Class at End of Semester includes also pupils in the class any time during the semester who dropped out of the given class, but who remained in school.

largely by the subject they take and the particular teacher they chance to have.

Moreover, data should be collected on the actual length of time it takes pupils to complete a given course, and on the basis of such data the requirements of the respective courses should be so adjusted to the abilities of children that those who are normal and regular in attendance can complete an entire course in four years.

#### SUMMARY

The school population of the city of Butte is, as we have seen, cosmopolitan, comprising a very large foreign element, which adds considerably to the difficulty of conducting a successful school system. On the other hand, the school system is of the traditional type, giving traditional courses of instruction. In order that the efficiency of the school system of Butte may be definitely measured, it will be necessary, as we have pointed out, to collect more adequate data than are now at hand on the number of children in the district of school age, on the number of children enrolled in the public, private, and parochial schools, and on the holding power of these schools. That information may be at hand which will aid in simplifying the course of study and standardizing study standards, data should be collected on promotions, non-promotions, and on failures by studies. That greater opportunity may be afforded to children who are already behind their grade, there is need for the establishment of special classes and schools having special purposes and courses of study designed to meet the needs of different groups of children. Moreover, that the public schools of Butte may serve in the fullest way all the children, youth, and adults of the community, there is need of additional readjustments other than the above. These needed readjustments will be discussed in full in the subsequent chapters of this report.

## CHAPTER VII

### THE QUALITY OF INSTRUCTION

THE strength of any school system depends, in large measure, upon the quality of work done by individual teachers. The commission appointed to survey the Butte school system began their work by planning a schedule by which every teacher employed in the district was to be visited. In these visits, each teacher was observed during a whole recitation period, or during such part of a period as was necessary to understand her methods of work in the subject which was being taught. As has already been indicated, all the members of the Survey commission participated in this part of the work. Each of them reported, at the end of each day's visitation, concerning the several teachers whose work had been observed. In summarizing the observations, it was discovered that not only had practically every teacher been visited, but that one or more lessons had been observed in every subject and in every grade in which that subject was taught. These reports were discussed by all of the members of the commission, and the findings reported below represent the combined judgment of all, and not the opinion of any individual.

#### (1) STANDARDS FOR JUDGING THE QUALITY OF INSTRUCTION AND CLASSROOM PROCEDURE

It is not uncommon to judge of the work of an individual teacher or of a school system in terms of certain aims, purposes, or ideals of education. In modern educational theory, it has been common to define the aim of education in terms of social efficiency. That aim as analyzed has sometimes been interpreted to mean that the

work of the school is to be judged by the degree to which certain qualities are developed in children which enable them to contribute to the common good. These qualities may be expressed as follows:

1. Sympathy, or responsiveness to social needs.
2. Intelligence, or the ability to think straight with respect to those issues which involve all members of the community.
3. The habit of acting for the common good.

We desire to develop in our democracy a group of individuals filled with ideals of service, intelligent and open-minded with respect to community problems, and practiced in the art of serving their fellow-men. Significant as these standards or aims are, and necessary as they may be in giving direction and affording criteria for judgment concerning our education practice, there remains the fact that the individual recitation must be judged in terms of other criteria, largely psychological and sociological, which vary with the different subjects or parts of subjects taught, and with the maturity of the children being instructed. It has been our purpose in judging the quality of instruction and the classroom procedure to keep in mind both the aims of education which give direction and meaning to the whole process, while at the same time we judged of the technique of instruction with respect to different types of teaching situations and varying problems of school management.

#### THE THREE TYPES OF LESSONS

##### *The Lesson for Habit Formation*

One of the most common types of classroom exercise is that which is known as the drill lesson. The success or failure of work of this kind depends upon the teacher's command of the technique of habit formation. To learn to spell a word, to know a multiplication table, or to com-

mand, automatically, the several forms of a German or a Latin verb, may be a long-drawn-out process against which the pupil rebels, or, by virtue of the skill of the teacher, the accomplishment of the desired end may carry only pleasant associations, and the time be greatly shortened. In drill, the motive or incentive for doing the work is of primary importance. The teacher who is able to make her pupils want to learn the tables in order that they may excel in an arithmetic game which they play, will secure the result which she desires with greater ease and in a shorter time than is necessary for another teacher who is interested only in compelling the children to acquire the habits involved because they are a part of the course of study which she has to teach. Skillful teachers are always seeking to vary the method which they employ, and to find new devices which introduce the maximum of motive upon the part of children.

In a spelling lesson, the skillful teacher, who has secured the maximum of motive, realizes that it is necessary to have the attention of the children fixed upon that part of the work, or that peculiarity of relation between sound and letters, which may present a difficulty. In all other fields where we seek to establish invariable responses in the form of habits, it is essential that the children be conscious of the peculiar difficulty, and that they analyze the situation so as to center their attention upon the important element involved. Mere repetition of the multiplication table or of the letters of the words to be spelled will not bring the maximum of return in the way of ability to spell, or knowledge of the multiplication table. Repetitions are valuable in proportion as children concentrate their attention upon the forms they are attempting to learn.

Teachers often make mistakes in prolonging the period of drill beyond the power of the children to give close attention to the work in hand. It is of great importance in work of this character that children be impressed with the futility of random guessing. They should rather be



taught always to look up for themselves or to inquire from the teacher concerning the exact form, rather than to run the risk of making mistakes which will have a tendency to persist and to cause difficulty over long periods of time. Teachers need to learn that children may seem to know the proper spelling of words, their multiplication tables, or their declensions and conjugations on one day, and then have forgotten them a month or two afterwards. The successful teacher realizes, where habits are involved, that the ultimate complete mastery of a form which she hopes to fix depends upon the original learning, and almost equally upon the gradual lengthening of the periods between drill lessons. For example, a multiplication table which the children seem to have mastered today should be reviewed tomorrow, and next week, and two weeks later, and a month later. It is, of course, important in all drill work that as many opportunities as possible be provided for the use of the particular form mastered. Indeed, the criteria for directing those responses which we wish to make habitual is expressed by the demand that we drill children only with respect to those forms which they must continually use.

### *Lessons Involving Thinking*

The most significant work of the school, from the standpoint of educating for social service the children whom they teach, is to be found in the proper conduct of those lessons which involve thinking upon the part of pupils. The progress of our democracy depends, in the last analysis, upon the power of the individual citizen to think for himself and to choose intelligently the leaders who are to carry out that program of social progress which we all desire. It is altogether too common in our schools to find children and teachers who are satisfied with repeating the ideas and thoughts of the book, or the mere memorization of those ideas or thoughts. From the standpoint of developing in-



telligence, and of preparing children for citizenship, it is of the utmost importance that the teacher discover to her pupils problems which will prove vital to them, and that the pupils accept responsibility for the thinking which is necessary in solving the problem which they face. Lessons in nature study, geography, history, and the like do not serve their proper function in educating children when they end merely in remembering what the teacher or the book has declared with respect to a particular phenomenon or a peculiar situation.

Knowledge or information can never be thought of as anything more than the raw material of thinking. It is of vastly greater importance that a pupil know how to gather information or data, that he be practiced in organizing and finding the meaning of the facts secured, that he reach his own conclusions, and that he have the habit of verifying these conclusions in terms of real situations, than that he be able to remember all of the facts in all of the books that have been furnished him during his school course. The teacher who asked a class to discover why they have such terrible famines in India, placed them in a position in which it was necessary to know the facts of the geography of India and stimulated them intellectually by demanding that they utilize such knowledge as they possessed in the solution of a problem in which they were interested. The nature-study teacher who teaches children concerning the form and names of all the different parts of a plant or tree has accomplished very little as compared with the teacher who asked her class to try to decide why, in a certain community, most of the people had planted elm trees. A history teacher has not added greatly to the development of the intellectual life of her pupils when she has them recite, by topics, all of the facts recorded in the text, but she may have developed some power of independent thought if she asks her pupils to think for themselves concerning the issues which have been presented in the thought of the generations which are past, and which have deter-

mined the course of human history. Put briefly, one may judge of the success of those lessons which should involve thinking by asking the following questions:

1. Has the teacher discovered to the pupils problems in which they are vitally interested?

2. Have the children learned, under the guidance of the teacher, how to collect that information or those data which are essential for the solution of their problems?

3. Have the pupils learned how to organize the data which they have gathered in such a way as to discover their significance?

4. Have the pupils a command of fundamental principles, and are they in the habit of consciously referring to those principles which have been established, in expressing their beliefs, or conclusions?

5. Does the teacher constantly seek to place the responsibility for inference with the pupils, rather than ask them to accept the conclusions which she has reached, or which are to be found in a book?

6. Are pupils learning that no conclusion or belief is to be accepted without such verification as may be possible in the experience of everyday life?

It is only when teachers have such ideas and ideals as are given above that we may hope to develop in our schools that intelligence which will make for a society in which the boss and the demagogue and the quack are driven out, and the leadership of the scientist and of the man devoted to the public welfare accepted.

### *Lessons for Appreciation*

We are coming to understand that it is the business of education to provide for the use of leisure time as well as to give vocational training. Throughout our country we find men and women whose leisure is devoted to types of amusement which are not only not beneficial, but often

positively injurious. It is the business of education to develop the power of appreciation in the fields of literature, fine arts, and music, not only from the standpoint of the books and pictures and music which are made available for all at the public expense, but also from the standpoint of developing in the home a type of activity and interest—possibly even an avocation—which may relieve somewhat the drudgery which is too often associated with the day's work. For the development of this power of appreciation and of interest in those things which are most worthy, the school community must depend most of all upon the teacher's power of appreciation and her skill in interpretation. Great literature, noble poetry, and beautiful music are apt to attract children and become important factors in their lives only when the children have been fortunate enough to associate with those whose greatest satisfaction comes from the enjoyment of these nobler pleasures.

We may never expect children to be fired with enthusiasm for music or art or poetry, except as they come in contact with teachers of great power and enthusiasm. In addition to the teacher's interpretation, it is essential, in these fields, that the pupils learn something of the thought and feeling expressed in these artistic forms, and that they command, in some degree, the technique of the artist whose work they would appreciate. It is futile to have children recite poetry unless they have, back of the memorization, a lively appreciation of the thought expressed and of the emotions which the poet sought to express in words. Some knowledge and even some skill in the use of the technique of the artist may contribute to the power of appreciation, provided there is not too much emphasis upon this phase of the work. For example, it is well for children to be able to read music, but if the course in music centers in this technical work, there is apt to be little power of appreciation developed. The teacher who can subordinate the technical aspects of the subject to the more vital enthusiasm which is developed through her power to inter-

pret, is the one who may expect the interest developed in school to carry over into the lives of the children after schooldays are over.

Creative work in any of the artistic fields may mean much in a growth of power of appreciation. The pupil who has written music to express a feeling corresponding to the words of the song composed by himself, the boy or girl who has tried to express, with the pencil or brush, the beauty of natural objects about him, may be expected to have a livelier appreciation of the work of the great artists than can ever be enjoyed by one who has never participated through production. In all of these fields it is of primary importance that the pupil exercise choice, rather than accept the statement of someone else, however more mature. Teachers often encourage pupils to say that they enjoy that which has little meaning for them, and the net effect of this hypocritical attitude upon the part of children is to destroy rather than create appreciation of those things most worth while. In poetry, or in music, or in art, it is well for the teacher, as often as is possible, to allow children to choose, from among those examples of the particular art which are worthy, the particular forms which they individually most enjoy. The power of appreciation develops gradually, and the skillful teacher holds before children, from time to time, those artistic forms which are just a little higher in the scale of excellence than those which the children have heretofore delighted in. Power to appreciate the noblest in literature, or in music, or in art, is reached only after long experience, and growth in power of appreciation is based upon the progressive use of those forms which lead from the lower to the higher levels.

#### TEACHING CHILDREN TO STUDY

The success of any teacher may be measured by the ability shown by her pupils for independent work. It is entirely possible to conduct a good drill lesson in spelling,

and yet have children waste time when they study their spelling lessons alone. It is necessary, if children are to work independently and economically, for the teacher to make them conscious of the method of work which will bring the most satisfactory results. They need to think of the necessity for picking the particular difficulties in the forms to be mastered; they need to realize what it is to pay attention; and they must know the danger of making mistakes, if they are to be expected to study their spelling lesson, or their multiplication tables, or their declensions and conjugations to best advantage. In that part of the school work involving thinking, it is not enough for the children to have exercised such power of thought as they may possess, under the direction of the teacher. They need to understand that it is necessary, in good thinking, to refer constantly to the particular problem under consideration. They must be taught how to use books and reference material to the best advantage. They need training in notating and in annotating. They need to be made conscious of the process of organizing data with reference to the particular problem which they are attacking.

Even in an exercise so simple as the memorization of a poem, it is essential, if the teacher would avoid habits of work which are positively injurious, that she make her pupils aware of the fact that the process of memorization depends upon careful analysis of the thought, mastery of the shades of meaning expressed by the author, and careful attention to the particular mode or method of expression, before any attempt is made to repeat the words of the author. It is possible to demonstrate to children that this method of work is not only more satisfactory from the standpoint of understanding and appreciating the poem, but that it is also actually more economical from the standpoint of the time which will be needed for the process of memorization. In all kinds of school work it is most necessary that pupils be made conscious of the method of work which is most economical, and that they constantly

be encouraged to undertake independent study. Children who have been taught how to study will continue to learn, while children who have not learned how to work independently will be handicapped, even in their later school or college work.

#### SOCIAL PHASES OF SCHOOL WORK

The success of the work of any teacher depends, in large measure, upon the relationships which exist among the pupils of her class, and between members of the class and herself. A recitation ought to be a place where children and teacher discuss together the problems which are involved in the subjects which they study. All too often teachers dominate the situation, and children ignore each other. We may not hope to develop the spirit of coöperation nor the habit of working for common ends in a classroom which is dominated by a teacher whose orders, or requests, furnish the sole criteria of action for the pupils. The right sort of social relationships in the classroom can be indicated by asking the following questions concerning classroom procedure:

1. Do the children do most of the talking?
2. Do children ask questions of each other?
3. Are the questions which the teacher asks such as to stimulate discussion among the pupils?
4. Do the children answer questions which are put by the teacher, or by other children, only after careful thought, and are they willing to defend their position against the suggestions of doubt which may be expressed by other pupils?
5. Do children feel that it is most worth while to help each other, and do they commonly feel responsible for the progress of the class?
6. Are the children so arranged during the recitation period as to be able to see each other?



7. Is it the habit of every child to speak to all the members of the group, rather than to the teacher?

When the work of the classroom is so organized as to develop the spirit of full and free discussion upon the part of pupils, when the teacher's questions are such as to provoke thought, when pupils really discuss with each other the issues which may arise in their class work, when the spirit of coöperation is everywhere present, when the teacher realizes that it is her main business to guide and direct the normal processes of thought and action on the part of the pupils, rather than to test them, and to accept the entire responsibility for their control, then the social training received in the schools may be expected to contribute largely to the development of socially efficient boys and girls.

#### DISCIPLINE AND MANAGEMENT

Much that has been suggested under the head of social phases of school work might have been treated under the head of discipline and management. There remains to be considered the question of discipline in its narrower significance. The end to be sought in the control of children is the development of the power of self-control. We ought to judge discipline in a classroom, not primarily by the ability which the teacher has to compel children to remain quiet and orderly, but rather by the power of the children to accept the responsibility for themselves either when the teacher is present or when she may be absent from the room. The teacher who is able to allow children to move from their seats in order to consult books, or to ask questions, or to secure needed materials, has undoubtedly developed greater strength upon the part of pupils, and should be given credit for better management, than the teacher who must always be consulted before the pupil leaves his seat.

There are, of course, situations which demand an invariable response and which should be matters of habit.



The passing of materials to a whole class, or a fire drill, are good illustrations of this type of response. The end to be sought is, however, mainly to develop upon the part of children a feeling of responsibility for themselves and for their class and school. It is only when children have this practice in self-control that we may claim that the school is doing its part to develop in them qualities which are so essential for good citizenship.

Under the head of management may be considered the problems of group teaching, individual instruction, and seat work. In any group of thirty to forty children, a good teacher will find occasion for dividing the larger group into two or three smaller divisions, in order that those of similar ability may work together. There will always be need for individual instruction for the boy or girl who has been absent on account of illness, or for one who may be backward with reference to some particular phase of school work. When the class is sectioned, those who are not reciting will, if they have been taught to work independently, be engaged in the preparation of lessons which are to follow.

## (2) THE QUALITY OF THE TEACHING DONE IN THE BUTTE SCHOOLS

Having established the criteria for judging the quality of instruction, it might seem proper to pass judgment, without further discussion, upon the work of the teachers of the school system, were it not for the fact that in any situation the quality of the teaching done depends upon certain other facts. These may be named as follows:

1. The courses of study.
2. The character of supervision.
3. The preparation of the teachers.

Each of these considerations is treated more fully in another part of this report. Suffice it to say here that the teachers of Butte represent, as a body, a minimum of pro-

fessional training or preparation; that most of those who hold supervisory positions have not been especially trained for their work, and that the courses of study need revision.

#### GREATER EFFICIENCY POSSIBLE

In the very beginning of this discussion concerning the quality of the work done by the teachers, the commission wish to make a distinction between that which is now common in the practices of the teachers, and that which they believe is possible of accomplishment by the same teaching corps. After careful observation of all of the work of the school system, and of practically all of the teachers, it was the unanimous opinion of the commission that the teachers now in the school system are capable, by virtue of their natural ability and their capacity for growth, of rendering a quality of service very greatly superior to that which they now give. The commission do not wish, in making this statement, to undervalue the good work which is now being done, and it may be well, therefore, at the very beginning of this discussion, to enumerate some type of exercises which have come under their observation and which seem to them to merit special commendation.

#### GOOD WORK SEEN

In all of the schools of the city, teachers are doing good drill work. In some of the classes visited there was considerable discussion upon the part of pupils. In the topical work in geography and history, children showed considerable power in presenting the facts, with respect to a particular topic, in consecutive discussion ranging from one to ten minutes in duration. Many teachers were working for the development of power in appreciation in music, literature, and drawing. The commission would like especially to commend the use of the phonograph and the work in dramatization, the committing to memory of poetry,

and the singing of songs which the children so much enjoy. The handwork which has been done in connection with the work in drawing will, it is believed, furnish a basis for more work of this sort. From the standpoint of the social phases of school work, the members of the commission were much pleased with the spirit of good fellowship which prevailed between teachers and pupils. They observed some degree of freedom in passing from the building and in moving about the room. Politeness and courtesy on the part of pupils seemed to be the rule throughout the city.

In order to be perfectly frank, it is necessary to state that the excellent work, suggested in the enumeration given above, was not universally found in the system. There is great need throughout the schools of capitalizing the strong work which is being done by especially capable teachers, by having them discuss their work with others who are less well trained, or by having those who are less able visit the classrooms in which the more capable teachers work.

#### DRILL WORK

It was noted above that the commission had observed some good drill work. In the system as a whole, drill has been entirely too much emphasized. On account of the importance attached to examinations, and because of the nature of these tests, it appears to the members of the commission that there has been altogether too much cramming of facts, and too little opportunity for thinking on the part of children. There needs to be more attention given to the problem of supplying proper motive for drill work, a better understanding of the necessity for gradual lengthening of the intervals between repetitions, and greater effort to find occasions for applying, in life situations, the results of the drill exercises. On the other hand, there is need for better appreciation of the meaning of habit and of drill with respect to correct speech, both from the standpoint of grammatical construction, enunciation, and pro-

nunciation, and with respect to cleanliness upon the part of pupils. Excellent work in drill exercises seems to the members of the commission to be easily within the reach of the large majority of the members of the teaching corps.

#### EFFECT OF THE EXAMINATION SYSTEM

The examination system which has prevailed in the city and in the state has, it seems to the members of the commission, interfered greatly with the development of the right sort of thinking on the part of pupils. The overwhelming demand of the examinations for facts, rather than for the power to think clearly, has led teachers to insist upon the memorization of the information given in the books. Possibly the greatest need of the school system, from the standpoint of instruction, is to be found in a change in the nature of the examinations and in the work of the teachers which will result in an emphasis upon thinking, rather than remembering. Children in the school system need more and more to have problems proposed for their solution. They ought to be taught how to gather information, and how to organize and interpret the facts which they find with relation to the problems they seek to solve. They should be taught to invoke principles which they have established, as a result of their own thinking, in order to explain the conclusions or beliefs which they hold. The habit of verification by reference to life situations, rather than the appeal to authority, should be inculcated. In all this work children need more and more to be permitted and encouraged to take the initiative, to accept responsibility for conclusions, and to be willing to defend the position which they take in the discussions which should be common in the classroom. Teachers need to learn to keep themselves more and more in the background,—they should guide and direct, rather than dominate and control the thinking of children. To stimulate thought upon the part of children requires a maximum of teaching

skill. Many of the teachers in the school system could be expected to do much stronger work in this field had they had better professional training, or should such training be provided for them.

#### MORE TEACHING FOR APPRECIATION NEEDED

Stronger work can be done, in those lessons involving appreciation, if teachers will feel the importance of their own emotional responses to the poetry or music or other art form involved. There is not much gain—and, indeed, there may be much loss—in requiring children to commit to memory a poem or to sing a song, if the teacher has not entered into the spirit of the situation herself, or has failed to interpret adequately for the children. Much of the reciting of poetry which members of the commission observed seemed to lack careful thought analysis, and appreciation of the emotion the author sought to portray. Children were too frequently merely repeating words, as rapidly as possible, rather than giving expression to the thought and feeling expressed by the poem. There was, in the judgment of the commission, too little attempt upon the part of children to create in the fields of literature, art, and music. In our best school systems today children write poetry, express thought and feeling with the pencil or brush, and even write music which they sing to the song which they have composed. Of course, these exercises result in childish productions, but nevertheless products which are tremendously worth while, from the standpoint of growth and power of appreciation. Some of the teachers in the school system are already trying to get results of the kind indicated above. Many more of them may be expected to develop strength in this kind of work under careful supervision, and by reason of the stimuli which may come from further professional training.

There seemed to be little appreciation, upon the part of teachers, of the meaning of independent work or of

teaching children to study. This again is due, we believe, to the very great dependence which has been placed upon remembering the textbook in order to pass examinations. If more emphasis were placed in the school system upon thinking, and less upon remembering facts, teachers would inevitably be brought to a consideration of the necessity of teaching children how to work independently.

Most of the teachers of the school system have children recite to them, and occupy the position of final authority in matters intellectual and with reference to discipline. In some rooms the desire to have children work with and for each other was observed. One member of the commission reported a class in which the teacher had cut up some old reading books and mounted the several stories on cardboard. In this room the children read their stories to the whole group. The reading was most excellent, and the reason, we believe, was to be found in the desire of the children to read their story so that others could understand and enjoy it.

Pupils seldom asked questions, and there was almost no discussion in the classrooms visited. In most cases the children sat at their seats, or stood in line, reciting to the teacher and not to each other. To get the right type of social development in the schools will require a shift of emphasis away from the demand for results in mere knowledge, over to an insistence upon clear thinking as the most desirable end to be obtained.

#### SUMMARY

In summarizing the quality of instruction in the schools of Butte, the commission wish to go on record as believing that as yet the teachers have only in a slight degree realized their full power. We believe that the present teaching corps could become very much more efficient, if professional training were required and provided by the school system. We are not unmindful of the excellent work



which is now being done by some of the teachers, but we believe that the general level of work done could be very materially improved. We particularly desire to call attention to the need for better professional training, on the part of the principals of the schools, with reference to their particular duties. We believe that the schools are especially weak with respect to independent thought upon the part of pupils; that there is need for better appreciation upon the part of teachers, and a command of technique by them, which will result in developing greater power of thought and larger appreciation of those things which are most worth while upon the part of children. We are confident that the results which all desire in education cannot be achieved without more appreciation on the part of the teachers of the necessity for coöperative endeavor and discussion upon the part of pupils. We confidently believe that the members of the teaching profession in Butte are not ignorant of the need for development along the lines that we have indicated, and we anticipate that they will be only too glad to do their share toward developing that strength in giving instruction which is to make the school system a large contributor to the development of social efficiency upon the part of all of the children of Butte. We wish, in closing this chapter, to commend especially the action of the Board of School Trustees in bringing an experienced and capable primary supervisor into the school system, as we feel certain that she can do much to improve the quality of the instruction in the lower grades of the city.



## CHAPTER VIII

### THE COURSES OF STUDY

WHEN we pass from an examination of the quality of the instruction given to an examination of the courses of study provided for the children of Butte, we find in such courses many reasons for the defects in the instruction pointed out in the last chapter. The courses of instruction provided here do not meet the best tests of what such courses should contain; they are not closely related to the present or the future needs of Butte's children; and they overemphasize mere information, drill, and the formal side of education.

#### NEW CONCEPTIONS OF EDUCATION

The courses of study provided for Butte's children represent essentially an earlier conception of education, where drill on the mere fundamentals of knowledge was conceived to be the essential purpose of public education. To convey to children the accumulated knowledge of the past, often with little thought as to its usefulness or the effect of the instruction, was for long considered to be the chief work of teachers and schools.

Within recent years, however, a newer and larger conception of the purpose of public education has come, and this newer and larger conception has been accepted rapidly and generally by our American people. This change in conception has meant much for the children in our schools, and has resulted in radical reconstructions and reorganizations in the courses of study provided. New subjects of instruction have been introduced, new types of schools have been provided, and the point of emphasis, both in school work and in instruction, has been shifted from mere infor-

mation and drill to the needs of the child as an individual. Instead of loading children with the accumulated knowledge of the past, the purpose in education has come to be, more and more, to prepare children for intelligent participation in the social, domestic, economic, and political life of the future, of which they will soon form a part.

A careful examination of the courses of instruction followed in Butte, the observation of the instruction given in the schools, and the tests made of the work of the children, all alike indicate that this newer conception of the purpose of education has as yet been but dimly understood by either teachers or school officers here. Mere drill, and not infrequently unintelligent and unproductive drill, still constitutes the bulk of all instruction offered in the elementary schools of the city.

#### FAILURE OF THE COURSES OF STUDY TO MEET THE NEW DEMANDS IN EDUCATION

The courses of study followed at present in the schools of Butte, which are a combination of outlines issued by the school authorities of School District No. 1 and the printed course of study issued by the Department of Public Instruction of the State of Montana, represent rather strongly the older conceptions as to the purpose of public education. The old school "tool subjects"—reading, writing, spelling, arithmetic, and English grammar—constitute the great bulk of all instruction now offered in the elementary schools, and but little attempt seems to have been made to relate the instruction which is given to the life which surrounds the children. Instruction for information and drill, rather than for usefulness in life, seems to be the marked characteristic of the courses provided.

The courses of instruction, too, are outlined in terms of pages of particular state-adopted textbooks, instead of in terms of topics and purposes, and in addition offer almost no suggestions to teachers as to methods of work or results

expected. The inevitable result is that teachers tend to teach textbooks rather than children, and instruction comes to be measured in terms of accomplishment rather than in terms of personal growth and increased power.

Last but not least in importance comes the series of quarterly written examinations, issued by the central school authorities to test the kind of instruction given, and which all children, from the third grade up, are expected to take and for which teachers continually drill and review. As promotion from grade to grade depends rather largely<sup>1</sup> on the ability of the children to pass the quarterly written tests, the tendency is strong to subordinate all other educational aims and ends to that of drilling children to pass these quarterly examinations. Teachers have in their classrooms sets of the examination questions used in previous examinations, and an effort is made to prepare the pupils for any questions which may be asked.

#### FUNDAMENTAL NEEDS

After making a thorough examination of the courses of study in use, the instruction in the schools, and sets of the examination questions used, certain fundamental recommendations seem desirable to the members of the Survey commission. The courses of instruction need a fundamental revision; much useless subject matter should be eliminated, and new subject matter substituted in its place; the instruction in the schools should be redirected and vitalized; the scope of the instruction should be materially broadened; and the uniform written examinations, as a basis for promotion from grade to grade, should be abandoned.

<sup>1</sup>In calculating the promotional average, two thirds are allowed, nominally, for daily work, and one third is based on the quarterly examinations; but as all grades made in all subjects other than the six so-called "standard (drill) studies" are excluded in calculating this promotional average, and as no grade below 70 in these "standard studies" will be accepted for passing, it will be seen that these written examinations really control the instruction given.

A somewhat more detailed examination of the instruction provided will serve to make these general criticisms clearer.

## (I) ELEMENTARY SCHOOL COURSES OF STUDY

### *Lack of Kindergartens*

The absence of any form of kindergarten instruction in connection with the schools of Butte, as well as the absence of the kindergarten spirit in the early primary grades, is a marked defect of the school system found here. The large foreign and laboring element found in Butte, and the peculiar social problems found here, make the need for kindergarten instruction, for the children in all the schools of the city, particularly strong. To make kindergarten instruction available for all the children between four and six years of age in the district (small outlying schools excepted), by the establishment of a kindergarten class in each school building, is an end toward which the school authorities of this district should work. The peculiar home conditions found in Butte make kindergarten instruction for the smaller children much more important than would be the case in most other cities. Two sessions, one in the forenoon and one in the afternoon, and for different groups of kindergarten children, could be maintained in all the large school buildings, if the necessities of the case should so demand, though one session each day probably would at first suffice.

### *The First School Grade*

In most of the first and second grades visited the work seemed too formal and too stiff. This is only natural under present conditions and under the present courses of study. There is too much formal drill, and too little attention is given to the constructive and play activities of the children. The general introduction of kindergarten

classes, the carrying over of the kindergarten work and spirit into the work of the first grade, the gradual substitution of chairs and movable tables for desks in the first two grades, and the elimination of some of the formal and more serious instruction offered in these grades would do much to improve the character and the quality of the instruction given.

*The Work in Arithmetic*

Approximately one eighth of the child's total school time, during the eight years of his elementary-school life in Butte, is devoted to the study of arithmetic, while in the four upper grades one sixth of the total school time is given to this study. This is a large amount of time. An examination of the outline of instruction followed in arithmetic, as well as an examination of the three arithmetic textbooks in use in the schools, alike reveal the fact that an enormous amount of time is devoted to problems which can never be of any practical importance to the children now in the Butte schools. Weeks and months and even years are devoted to the study and "working" of problems of a type such as almost no one in any kind of practical life is ever called upon to solve, and which have no value whatever, except as busy work and mere drill. Many of the problems are mere puzzles and have no place in proper arithmetical training. Few persons in practical life ever have use for any mathematical ability beyond that involved in a good knowledge of addition, subtraction, multiplication, and division of simple whole numbers and fractions, a limited knowledge of decimals and percentages, and a few of the more commonly used measures of weight and dimensions. Yet pupils here are spending much time in solving problems involving ratio and proportion, the extraction of roots, the manipulation of rarely used measures, the purchase of stocks and bonds, banking, foreign exchange, interest, partial payments, taxes, insurance, the measurement of geometrical solids, and the like.

That some of the pupils get these problems and enjoy them must be admitted, but that to most of the pupils the work is largely a waste of valuable time is also equally certain. The arithmetical tests taken by the members of the commission, and to which more detailed reference is made in Chapter IX of this report, showed a surprisingly wide variation in arithmetical ability among the different children in the different grades tested, indicating that the results obtained are in no way uniform or commensurate with the efforts expended.

The arithmetical work is too heavy, entirely too wide a range of work is attempted, too much of the school time is devoted to the subject, and too much mere written arithmetic and too little mental arithmetic is required. The commission recommend that the work in arithmetic be materially reduced and rearranged, and after somewhat the following plan:

*First Grade.* No arithmetic to be taught, except as counting or numbers may be incidental to other school work.

*Second Grade.* Very little in the first half, and this quite concrete; and not beyond page 48 (counting) of the *Elementary Arithmetic*, during the year.

*Third and Fourth Grades.* About as at present.

*Fifth Grade.* Using the *Complete Arithmetic*, Part I, and through simple fractions, to page 126.

*Sixth Grade.* Decimal fractions and denominate numbers, up to page 214. Omit balance of Part I.

*Seventh Grade.* *Complete Arithmetic*, Part II, up to page 76. Omit balance of book.

In all grades from third to seventh, materially increase the oral work, and require quick daily drills on simple combinations of whole numbers and fractions, and simple mental problems paralleling the written work. Emphasize reasoning, rather than the mere working of problems.



*Eighth Grade.* Introduce a simple course in home and business bookkeeping and accounting. Three days each week will be sufficient for this work, or, perhaps better still, five days a week for a half year.

With the eliminations here indicated, much time can be saved for more important school work, and the quality of the really fundamental arithmetical instruction can at the same time be materially improved.

### *Language Work*

This subject is also allotted a large amount of time in the Butte schools, its total time allotment being the same as that for arithmetic. The city outline for the work of the first three grades is good, better in fact than the instruction seen. From the fourth to the sixth grades the work is based on a textbook on language usage, and in the seventh and eighth grades on a textbook in technical grammar.

Despite the large amount of time given to the subject, the work seen, in both oral and written English, was quite uniformly poor throughout the schools. The children seemed to lack both ideas to express and form for expression. The oral-language work seen consisted largely of an attempt to reproduce what the children had just read from a book; it lacked individuality and reality; it often meant little or nothing to the child; and often it was poorly expressed, with poor pronunciation and accentuation. It seemed, too, to lack in sincerity and feeling, as though the child were expressing words, rather than ideas, and complying with a task set by the teacher rather than giving expression to ideas and feelings he had come to have. This condition extends throughout the grades, in practically all of the schools, and even up into the high-school classes.

In the written tests given by the different members of



the Survey commission, in the four upper grades of the ten largest elementary schools, as explained more in detail in Chapter IX, the results obtained were also very poor. The compositions revealed the same lack of thinking, power of analysis, and ability to express oneself which was so prominent a characteristic of the oral work seen.

That the large number of foreign-born and non-English-speaking children found in some of the schools contribute somewhat to this condition, in the lower grades, may be taken for granted, but this fact serves only to accentuate the need for more careful and more concrete English instruction here. Other cities which have this problem to face meet it squarely, and eliminate this difficulty as early as possible in the child's school course.

The real difficulty lies, rather, in the methods and courses of instruction followed in the Butte schools. The work in language is taught entirely too much as a subject by itself, instead of being made a natural outgrowth of the other school work. The work of the grades throughout, characterized as it is by a lack of constructive and concrete work and an overemphasis on drill and book learning, does not offer the child the real experiences necessary for good English expression. The attempt is made throughout the schools to secure expression when the child has little that is real and concrete to express. Impression must precede expression, and ideas must be given children before the attempt is made to force from them sentences expressing ideas. Reproduction of what has just been read from a book is too unreal to prove very effective as a basis for training in the use of the English tongue.

The work of the schools of Butte needs to be made more real and concrete, and to be more closely connected with real life experiences. The general introduction of the kindergarten, the introduction of constructive activities throughout the grades, better recognition of the play activities of children, the provision of good work in nature study and elementary science throughout the grades, a

material reduction in the amount of mere book work now required, and an improvement of the teaching methods, as outlined in Chapter VII, would in a short time materially change the character of both the oral and written expression of the children in the schools of Butte.

The textbook in language in use in the fifth and sixth grades is not a very good one for language study, and should be supplemented by some more suitable book. If a simpler and much more concrete book were introduced for use in the fourth and fifth grades, and then the state text, *Book One; Language*, were used as a basis for work in the sixth, seventh, and eighth grades, it would be a much better arrangement. The *Book Two; Grammar*, should be deferred entirely until the high-school period. It is a sheer waste of time to attempt to teach the technical material which it contains to children of elementary school age, and, in addition, a knowledge of the technical grammar it contains is of little use to anyone except to a school teacher who may be required to teach it. The present emphasis on technical grammar in the grades serves largely to defeat the ends for which English is supposed to be taught in our schools. Instead, the emphasis should be placed on composition and expression, based on feeling and real experiences. This feeling and experience must be drawn from other sources than the anatomical analysis of the English language.

The course of study in language needs to be rewritten, along the lines here suggested.

### *Reading and Literature*

The work in reading in the first grade is well done, and generally so in the second grade. The phonic drill in the first two grades seemed to be quite thorough. However, though some good beginnings are made in these two lower grades, the work seems to fail to get results as the child passes on to the upper grades. Drill, rather than

use and application, seems early to dominate the work in reading, and, in the upper grades, the work soon becomes formal and mechanical, the children pronouncing the words rather than reading with expression or feeling. Poor position while reading, poor pronunciation and enunciation, lack of expression or appreciation—these seemed to be the more common characteristics of the work in reading and literature in the middle and the upper grades. The idea of formal drill, rather than expressive reading, seems soon to dominate the instruction. While much good literature is read, the appreciation of good literature seemed almost entirely absent. The reading heard, the reciting of the poems learned, and the questioning by the teachers, all seemed to fail to bring out the spirit of the selections. In the upper grades it was markedly reading drill, rather than literary appreciation.

There is need of much more attention being given to reading method, and means for developing literary appreciation. The formal drill idea, which so characterizes the work in the Butte schools, needs to be subordinated here to that of literary appreciation, and the present drill work needs to be changed to a drill on articulation and expressive reading. The selections to be memorized might be better graded and improved, and their rendition made more effective. Good examples of expressive reading, too, should be put, from time to time, before the children, and a list of choice selections, to be read by the teachers to the classes, should be compiled. The supplemental reading could be improved by the addition of a number of easy books dealing with historical events and containing interesting biographical stories. The present supplemental reading is too exclusively literary in type.

### *Home Reading Books*

The school ought also, as an important part of its work in instruction in reading, to strive to develop a taste for

good books on the part of the children. In a city of the type of Butte this is quite important. The experience of other communities has been that, unless this is done before the eighth grade is reached, it is seldom possible to do it afterward. The work should begin by the time the third grade is reached and should continue throughout the grades. To this end the school, the public library, or the two combined, should provide a large collection of well-selected children's books for school use. An average of twenty books to a classroom is not too many, though all classrooms need not be supplied with sets of the same books throughout. Some interchange of books between schools would be both economical and desirable.

The greatest danger in providing such books for children is that they may be selected by adults, with adult ideas as to what children ought to read, and the whole purpose in providing them be lost. The advice of the best children's librarians, in cities which have made a success of this work, should be sought before any purchases are made. When purchased these books should be placed in the school-rooms; it should be a part of the work of the teachers to awaken an interest in them and to develop a taste for good reading; and the lending of these books to the children should be under the control of the classroom teachers. From three to four thousand dollars as an initial expenditure, with from seven to eight hundred added each year, would prove of great service in forming the literary tastes of children in this community, if good selections of books were made.

### *History and Civil Government*

In connection with the work in reading and literature, reading of a historical nature should be introduced much earlier than is now done. Biographical stories and historical stories, with strong emphasis on the personal element, as distinct from the event, should be introduced as supplemental reading, and as a basis for oral language

work of a kind which the children will scarcely recognize as such. Birthdays of famous men and national holidays should be celebrated, local history should be introduced, and an effort should be made to awaken a historical sense in children, so that they may gradually come to feel something of the spirit of history. The work in the earlier grades should be very concrete, the personal story being the important element, but with a gradual shifting of the story from the hero to the events surrounding the hero. The work should be correlated with reading, geography, and oral language, and the assignment of lessons, the memorization of texts, and formal drill on facts should be completely absent from the work. The work of the teacher is sympathetically to reinforce the story and to awaken and enrich the mind of the child. Of such work the Survey commission saw almost none in the schools of Butte, and they recommend that, in the revision of the courses of study, such work be prominently introduced into the lower grades and that the teachers be given training to enable them to handle such work properly.

In the formal work in the teaching of United States history, the Mace's *Primary History* is a good book for 5 A and 6 B work, but Gordy's *American Beginnings in Europe* is too difficult, and is unsuited as a book to follow the Mace. If the Gordy is to be used at all it should be placed in the 8 A grade, and made to follow, rather than precede, formal study of United States history. The Mace is even better adapted to the sixth grade than to the fifth.

The work in history in the seventh and eighth grades could be improved by outlining, in some detail, a course of study based upon topics, with reference to a number of texts and supplemental books rather than basing it on pages in a single book. The Gordy history could be continued as the basal textbook, but supplemented largely from other sources. The book contains too many unimportant details and unrelated facts,—details and facts which no child should be expected to learn,—and many of these

should be neglected in the study. The awakening of an appreciation for history and a historical spirit, rather than a continual drill on the memorization of facts and dates, should be made prominent features of the work.

### *Geography*

This, one of the richest and most interesting of all studies, seemed to the members of the Survey commission to be very poorly done in the schools of Butte. No preparation of much consequence is made for it in the first two years, through nature study and oral language. The work is begun in the third grade by formal study from a textbook, *Home Geography for Primary Grades*. The work, as seen, was bookish to a high degree, and consisted largely of reading and reproducing the words of the textbook. The book itself contains little that is not given, in better form, in the book used in the fourth grade, and its use as a textbook in geography in the third grade is not recommended. If used at all it should be as a supplemental reader, and even then very sparingly.

Instead, the work in this grade, and in part in the fourth grade also, should be oral, concrete, and applied. Bookish geography at this stage is little better than no geography at all. The course ought to be outlined in some detail, and be in a way an outgrowth of the work in nature study in the grade below. The common home and outdoor experiences of the children should be utilized in the formation of geographic conceptions. The work in the later grades should apply the conceptions gained to the recognition and interpretation of geographic elements met with in the study of the world.

In a community such as Butte, with its wealth of geographic material within sight, there is little excuse for beginning the study of home geography from a book. The schools should be supplied with sand boards and compasses, sand-board models should be made and studied, out-of-door



excursions should be taken, weather observations should be made and recorded, the immediate locality should be studied and mapped, the occupations of people should be studied, and talks about industries and articles of food should be conducted with the children. A course of study for the third grade, based on a good course in nature study in the two grades below and adapted to Butte, could be outlined which would prove far more profitable than any textbook study can ever be, not only in awakening an appreciation for and an understanding of geographical facts, but in developing thinking and reasoning and facility in oral expression on the part of the children.

The work of the fourth and fifth grades is well outlined, and a good textbook is in the hands of the pupils, but in the sixth and seventh grades it is unfortunate that a change has to be made to another type of textbook, by another author, instead of continuing with the advanced book by the same author. This is one of the unfortunate results arising from the adoption of uniform textbooks for a whole state. If Butte, as a city of the first class, could adopt its own textbooks, selections better adapted to its needs could, in a number of cases, be made.

The advanced geography in use is too largely physical geography, and in parts too difficult for the grades in which it is used. To insure better work a topical course of study for the upper grades should be outlined, and teachers should be supplied with copies of the advanced Tarr and McMurry Geography, and sets of the Dodge Geographies, as well as with more supplemental geographical material. All third and fourth grade rooms should also be supplied with sand tables, for developmental work, and many pictures for geographical teaching should be provided.

### *Nature Study and Science Instruction*

It is in natural-science instruction that the Butte elementary schools are perhaps weakest. Excepting a little



weather observation in the first and second grades, and work in health and physiology in the upper grades, practically nothing is done. Yet few subjects could be introduced which, if well taught, would be of more value to Butte children, or which would do more to develop reasoning power on the part of the children, than a good course, running throughout the grades, in the study of natural material and scientific phenomena. This should begin with nature study in the lower grades, be closely correlated with home geography and hygiene in the third and fourth grades, and involve simple studies of animals, plants, the stars, health lessons, and physical phenomena in the upper grades. In the study of simple problems in light, heat, sound, electricity, magnetism, and geological and chemical action, splendid opportunities can be had for developing clear thinking and good oral expression, as well as teaching information of large practical value. The Survey commission recommends that such work be outlined and gradually introduced into each school.

### *Spelling*

The work in spelling in the schools is worthy of much commendation. As shown by the tests taken, and explained at length in Chapter IX, the children of Butte are much above the average of other cities tested in their ability to spell. It is in such a subject as spelling that the drill, so characteristic of the Butte schools, reaches its maximum efficiency. The criticism which the commission would offer is that oral spelling is begun too early in the grades, and that the drill is made too mechanical.

### *Writing*

The Palmer method of penmanship, which is used in Butte, produces very good results when skillfully used. It is subject to serious abuse, however, by teachers who do not understand the principles underlying habit formation.

Excellent skill in making running ovals and the like may be acquired, without the corresponding skill in handwriting. While much very good writing is done in Butte, the great difference observed in the merit of the writing done in various rooms indicates that there is need for the subordination, by many of the teachers, of drill exercises to practice in real writing.

### *Music*

Some of the music heard was good, though on the other hand some of it was poor. It is the judgment of the Survey commission that much too little is made of music in the Butte schools. More time should be given to the work, and more musical appreciation should be developed in the children. One very important function of music instruction is the development of musical appreciation on the part of the children, and to this end they should frequently be permitted to hear good examples of musical composition, and of a type suited to their years and their ability to appreciate. The teachers and principals are to be commended for securing phonographs for the schools, but the phonographs are supplied with far too few records. The Board of Trustees should now supply each school with a large number and a well-selected assortment of musical records, and these instruments should then be put into daily use in the classrooms. Some examples of simple violin and orchestra music should also be included in the records. The same care in selecting these records as is recommended above for library books should be exercised, or many unsuitable records will be obtained.

If, as probably is the case, there are teachers in certain schools who cannot intelligently and appreciatively teach music, the teaching of music in these schools should be somewhat specialized, and some teacher having musical ability should be temporarily exchanged with such teachers for this instruction. In each large school, too, glee clubs, choruses, an orchestra, and perhaps a band could be or-

ganized with advantage, not only to the music work in the schools, but to the advantage of the home life of the community as well. A city becomes musical and derives the many advantages arising from good music only when its children are provided with the necessary opportunities for developing their native love of music.

### *Drawing*

The drawing in the schools shows that the supervisor of drawing has made an earnest effort to develop the subject. The work examined was good average school work, but it showed much of the same lack of originality and power of expression which characterizes much of the other work found in the schools. Until the teachers in Butte can have had some professional training for their work, it is perhaps too much to expect any important improvement in the work of drawing in the schools.

### *Play and Physical Training*

Seldom have the members of the Survey commission examined a school system where so little account was taken of the play activities and physical training of the children. The physical welfare of children is dealt with more at length in another chapter (Chapter XI), and the need of better playgrounds is pointed out in Chapter III. At this point the Survey commission desires only to recommend that more attention be given, in the course of study, to proper physical exercise and the development of the play activities of the children.

## (2) MANUAL AND HOUSEHOLD INSTRUCTION IN THE ELEMENTARY SCHOOLS

The work in manual training in the elementary schools of Butte is to be commended in the following particulars:

1. Quality of workmanship. As far as it goes, the quality of the work done is better than that in a number of cities as large as Butte, or larger.

2. The teaching staff. The teachers are well prepared for the work, and are making intelligent and efficient use of the facilities afforded them.

3. Equipment. The equipment is for the most part of good quality, and well adapted for the kind of work undertaken.

This department needs to be strengthened, however, in the following particulars:

1. Increase in time allotment for the work.
2. Extension of the work throughout all the grades.
3. Introduction of new lines of work.
4. Additional centers and equipment.
5. Emphasis on content value and the thought element in the work in manual arts.
6. New type of supervision.
7. Household arts for the girls.

### *Time Allotment*

The most serious need to be met in the development of an adequate scheme of handwork for the elementary schools of Butte is a material increase in the amount of time set aside for this purpose. The revision of the courses of time study suggested in the preceding page, and the elimination there recommended, will make the necessary increase possible. The minimum amount of time should be one half day per week through the first six years, and two half days per week in the seventh and eighth years, with a flexible arrangement which will permit a principal to organize special classes, particularly for backward children, in which from one fourth to one third of the pupils' school time may be devoted to drawing and shopwork of various kinds.

*Extension of the Handwork*

The second important need of the schools is the extension of the work in the manual arts down through the grades.

The introduction of kindergartens, as suggested elsewhere by the commission, will lay the foundation for the development of a comprehensive scheme of handwork. This should be followed through the first four grades by a number of simple lines of handwork, in which boys and girls will receive substantially the same instruction. From the fifth grade on, differentiation between the work of boys and girls should be sought, with the aim of meeting the special needs of each.

*New Lines of Work*

A substantial increase in the time allotment, and the extension of the department throughout the grades, will make possible the introduction of several new lines of work and the enrichment of those that are now offered.

The work in the first four grades should involve a considerable variety of materials and processes, adapted to the requirements of the course of study as finally developed and to the particular needs of the children of this community. These lines of work should include paper and cardboard work, textiles, basketry, weaving, and drawing. For the fifth and sixth years there should be provided, in addition to the knifework and coping-saw work now in the schools, opportunities for boys for work in elementary bookbinding, printing, and work in clay, cement, and plaster.

In the seventh and eighth years the boys should carry still further the work in printing and bookbinding, and there should be added problems in copper, brass, leather, and benchwork in wood. The woodwork might well include some simple framing and carpentering, and all of the work should be made as practical as possible.

*Additional Centers and Equipment*

The Survey commission is of the opinion that the provision of a manual-training center for each large elementary school in the district would be a wise expenditure of funds. For each of the schools having eight grades such a center should ultimately provide facilities for all the lines of work which have been suggested, while the centers for those schools having less than eight grades may have somewhat less complete equipment.

The shop for the boys' work should present an appearance somewhat different from that of the usual shop center. Its function should be that of a laboratory in which real problems may be considered and solved, rather than as a place for instruction in the making of a formal set of models. The equipment should include perhaps a half-dozen woodworking benches, a few benches for simple metal work, a small printing plant, the necessary tools and appliances for bookbinding, and equipment for work in clay, cement, and leather, and for freehand and mechanical drawing.

*The Thought Side of Manual Training*

In the suggestions herein made as to the extension of the work in manual training, the members of the Survey commission have in mind something quite different from the simple addition of mechanical processes and manipulative technique. It would be better not to disturb the existing conditions than greatly to increase the amount of time devoted to handwork, if it is to mean simply the introduction of formal courses of models or exercises in the various lines of work. Too often the problem as it confronts the boy or girl has been analyzed by the teacher, for purposes of logical presentation, to the point of extracting all the elements involving thought or initiative. This is the path of least resistance, and "courses" of models are its natural result.



The ideal of a series of problems which must be attacked and solved by the pupils, even formulated by them wherever possible, is one difficult of attainment under the limitations imposed by program routine; nevertheless, it is an ideal toward which public school work in the manual arts is undoubtedly tending. It requires no discussion to show that work of this type means the maximum of interest and profit for both pupil and teacher.

### *Supervision Needed*

The introduction of the various lines of work suggested will require considerable special preparation on the part of the regular grade teachers, as well as on the part of the shop teachers. For this reason the new lines of work must be introduced gradually. Provision must be also made for a new type of supervision, which for a time at least will take the form of training the teachers in the methods and purposes of the work. To secure satisfactory results the teachers should have a certain amount of time designated for the purpose of this special preparation, and the supervisors should have the assistance of practical mechanics in the various lines of work for such periods of time as may be necessary.

### *Household Arts for Girls*

One of the most serious defects in the public school system of Butte, in the opinion of the Survey commission, is the failure to make any adequate provision for training girls in the household arts. Only sewing in the sixth, seventh, and eighth grades is now offered. By their negligent attitude in this matter, the public schools of Butte are neglecting one of the most important and most alluring opportunities to influence favorably the life of this community.

The work in cooking, sewing, and the elements of home-



care and home-management should begin not later than the fifth grade, and should be carried through the eighth. The attempt should be made to deal specifically with just such practical problems as the girls of this community are obliged to meet in their own homes. The school cannot deal with problems that are more important than the management of the family income, the care of the home, the preparation and serving of food, the making and care of clothing, home sanitation and hygiene, and the care of infants and children. There can be no question that the foundations of this work, if it is to affect the community life, must be laid in the elementary schools.

### *Household Art Centers*

At first thought there may be some objection to the recommendation of the commission with reference to special provision for girls' work, because of the lack of room in the present school buildings. This lack of room, however, may prove to be an advantage rather than otherwise, as the Board of School Trustees may be obliged to look elsewhere for accommodations. The recommendations for a central intermediate school, made in this chapter and in Chapter III, if carried out, would also solve the problem by freeing two or three rooms in each large building, one of which could then be used for the purpose.

One of the most promising solutions of the problem of a center for girls' work is that of renting or buying a small cottage or apartment in the neighborhood of a number of the larger schools, these to be utilized as household-arts laboratories.<sup>1</sup> By this plan the work of the girls is carried on under conditions that correspond much more closely to those of the home, to which it all relates, than can possibly be the case in the school laboratory, and, in addition, there

<sup>1</sup> The details of this plan have been carefully worked out by Mrs. Ada Wilson Trowbridge, director of girls' work in the public schools of Providence, R. I., in *The Home School*; Boston, Houghton Mifflin Company, The Riverside Monograph Series, 1913.

are encountered the numerous practical problems in furnishing, decorating, and repairing in the solution of which the boys of the shopwork classes can coöperate. It is difficult to overestimate the extent of the influence which the school may exert in the community through such an approach to the real problems of homemaking.

### (3) INTERMEDIATE SCHOOLS

#### *Possible Reorganizations Recommended*

All that has been said so far with reference to the courses of study in the elementary schools has been said on the assumption that the present scheme of organization of the schools, viz., eight years of elementary school, taught by grade teachers, and four years of high school, taught by specialized teachers, is to be continued unchanged. If the schools were reorganized, however, as recommended in Chapter III, into six years of elementary school, three years of intermediate school, and three years of high school, as has been done in many communities, the intermediate schools to comprise the seventh, eighth, and ninth grades and to be taught by departmental methods and by specially trained teachers, a much better rearrangement of the school work and much stronger courses of study could be provided. This plan is outlined at some length in Chapter III, on the School Plant and Equipment; at this point the Survey commission desires only to point out the educational advantages of the plan.

#### *Educational Advantages of the Plan Recommended*

At present all children in Butte are carried along to the age of fourteen or fifteen—that is, through the eighth grade—by means of the same plan of instruction, viz., the grade-teacher system. Each teacher teaches all the subjects of the grade, something which, in the two highest

grades at least, very few teachers are able to do with any degree of satisfaction. The present courses of study, too, seem to have been framed on the assumption that the same kind of training is equally satisfactory for all classes of children. The idea that it is a part of the business of the public school to study and provide for differing capacities in children seems never to have taken root here. The attempt, in many of our school systems, of teachers to teach everything in the upper grades, and to put all children through a uniform course of instruction, is the chief reason why the least effective school instruction so frequently is found in these upper elementary school grades.

Of the gradual differentiation in tastes, capacities, and future needs and possibilities of children, which is gradually taking place, the grade-teacher system in the upper grades takes but little account. After the sixth grade the indications of differing educational needs begin rapidly to manifest themselves, and call for a differentiation in instruction and a change in the character and methods of teaching, if the best educational results are to be obtained. Instead of uniform courses for all children in the school, different courses, somewhat similar to be sure, ought to be offered to test out tastes and capacities and to meet the different educational needs of different types of boys and girls in the schools, and more specialized methods in instruction should now be employed.

### *How the Intermediate School Meets the Special Needs of the Upper Grades*

These changing needs the intermediate school attempts to meet, by creating a school which is, as its name signifies, intermediate both in position and in the character of its instruction between the elementary grade school on the one hand and the specialized high school on the other. In addition to a very material improvement in the quality of instruction in the seventh and eighth grades, it provides

better courses of instruction for the children in these grades, makes easier the transition to the secondary school, and materially reduces the heavy mortality which so commonly occurs in the first year of the ordinary high school. The present radical change in the character of instruction between the elementary school and the high school, which occurs now at the age of fourteen or fifteen, is both wasteful and artificial. The change should be made more gradually, and the time for the change to begin is when the child is passing from childhood into youth, which is at the beginning of the period of adolescence. This, however, is at the age of twelve or thirteen, rather than at fourteen or fifteen. The transition at present is both delayed and abrupt, whereas, by the insertion of the intermediate school in between the elementary school and the high school, the change is made easier and more gradual, and with much better educational results.

The great argument for the intermediate school, however, lies rather in the resulting improvement in the quality of instruction and in the adaptations to individual capacities and needs which results from the provision of intermediate-school training. It offers to pupils the advantages of departmental work; it offers the possibility of options, in the matter of both studies and courses of study; it permits of the adaptation of instruction to the needs of the two sexes; it tends to postpone for a year the age of leaving school; and it offers opportunities for the development of a type of vocational work not possible under the present plan of grade-school organization.

### *Possible Courses of Study for Intermediate Schools*

To illustrate the possibilities of the intermediate school, and to show better its advantages over the grade school as an educational institution, we give the outline of two possible courses of study which would be adapted to the needs of the children in the Butte schools.

## INTERMEDIATE SCHOOL COURSES

## 1. GENERAL COURSE

(Primarily for those intending to go to high school, and to enter the classical or scientific courses)

*Seventh Grade*

<i>Required Subjects</i>	<i>Periods per Week</i>	<i>Elective Subjects</i>	<i>Periods per Week</i>
English Literature and Composition .....	5	Select one of the following:	
United States History .....	5	Latin .....	5
Descriptive Geography .....	5	German .....	5
Arithmetic .....	5	Spanish .....	5
Physical Training .....	2	Bookkeeping and Business	
Drawing .....	2	Arithmetic .....	5
Music .....	2		
Girls, Cooking .....	2		
Girls, Sewing .....	2		
Boys, Manual Training .....	4		

*Eighth Grade*

<i>Required Subjects</i>	<i>Periods per Week</i>	<i>Elective Subjects</i>	<i>Periods per Week</i>
English Literature and Composition .....	5	Select one of the following:	
United States History and Civics .....	5	Latin .....	5
General Science .....	3	German .....	5
Physiology and Hygiene .....	2	Spanish .....	5
Drawing .....	3	Bookkeeping and Business	
Music .....	2	Arithmetic .....	5
Physical Training .....	1	Mathematics:	
Girls, Cooking .....	2	Elementary Algebra, 8 B. ....	5
Girls, Sewing .....	2	Constructive Geometry, 8 A. ..	5
Boys, Manual Training .....	4		

*Ninth Grade*

<i>Required Subjects</i>	<i>Periods per Week</i>	<i>Elective Subjects</i>	<i>Periods per Week</i>
English Literature and Composition .....	5	Select two of the following:	
Physical Geography .....	5	Latin .....	5
Music or Oral English .....	2	German .....	5
Physical Training .....	1	Spanish .....	5
		(Two languages only by special permission)	
		Algebra .....	5
		Ancient History .....	5
		Drawing—Freehand or Mechanical .....	5
		Girls, Cooking or Sewing .....	4
		Boys, Woodwork .....	4

2. VOCATIONAL COURSE

(Primarily for those not intending to go to high school)

Seventh Year

<i>Required Subjects</i>		<i>Elective Subjects</i>	Periods per Week
Same as General Course.		Select one of the following:	
		German .....	5
		Spanish .....	5
		Bookkeeping and Business	
		Arithmetic .....	5

Eighth Year

<i>Required Subjects</i>	Periods per Week	<i>Elective Subjects</i>	Periods per Week
English Literature and Composition .....	5	Select one of the following:	
United States History and Civics .....	5	German .....	5
General Science .....	3	Spanish .....	5
Physiology and Hygiene.....	2	Bookkeeping and Business	
Physical Training .....	1	Arithmetic .....	5
Girls, Freehand Drawing.....	5	Mathematics:	
Girls, Cooking and Sewing....	10	Elementary Algebra, 8 B.....	5
Boys, Mechanical Drawing.....	5	Constructive Geometry, 8 A..	5
Boys, Manual Training.....	10	Music .....	2

Ninth Year

<i>Required Subjects</i>	Periods per Week	<i>Elective Subjects</i>	Periods per Week
English Literature and Composition .....	5	Select three of the following:	
Physical Training .....	1	German .....	5
		Spanish .....	5
		General World History.....	5
		Physical Geography .....	5
		Music or Oral English.....	2
		Girls—	
		Freehand Drawing .....	5
		Cooking or Sewing.....	5
		Elementary Chemistry .....	5
		Boys—	
		Mechanical Drawing .....	5
		Elementary Physics .....	5
		Manual Training .....	5
		Both—	
		Stenography .....	5
		Typewriting .....	5
		Business Practice .....	5



In addition to providing instruction better suited to individual needs, as these have manifested themselves before entering and during the intermediate period, the different courses serve also to test the tastes and interests and to bring out the possible capacity of the different pupils, so that, when the high school is reached, it will be possible to determine intelligently, instead of by the present haphazard method, what line of interest the pupil would best attempt in the high school or whether the pupil should attempt a high-school course at all. At the same time the differences in the intermediate-school courses are not so marked but that a pupil may change his or her course both during and at the close of the intermediate-school period.

### *Difficulties in Inaugurating the Plan*

The intermediate-school plan, notwithstanding its many important educational advantages, is not easy to inaugurate. In the first place, the ordinary grade teacher and the ordinary elementary-school principal are usually not prepared successfully to inaugurate such a new school. Teachers for such work should have at least partial college or university training, and some teaching experience; besides, they should also have broad human interests and large human sympathies. If the plan were inaugurated in Butte, such of the present corps of teachers as are selected for the work should be given an opportunity and be expected to make proper preparation for such instruction by summer study or college work.

In the third place, there would be some objection, at first, from parents whose children would have to travel a longer distance to a central school. For the children coming from the more distant schools the Board of Trustees probably ought to provide transportation. Finally, the plan would cost somewhat more than the present arrangements. The cheapest kind of a school is a poor school;



improvements in education always cost more money. The increased efficiency, though, of the reorganized school would more than compensate for the increased expenditure.

In Chapter III, on the School Plant and Equipment, the Survey commission goes more into detail as to the location of a central intermediate school, and to that section the reader is referred for more detailed information with regard to the plan.

#### (4) THE HIGH SCHOOL

The different members of the Survey commission visited a number of the classes in the high school, and examined into its equipment and work. The high school as an institution impressed the different members as a very good school, but somewhat of the traditional type. The teachers seemed to be well prepared, and, with minor exceptions, to be doing a very satisfactory grade of work. Due in part to the better education and training of the teachers, and in part to the somewhat superior class of pupils who remain in school through the high-school period, the work in the high school impressed all of the members of the Survey commission as much the best thing, educationally, that they saw in Butte.

The work in the different subjects of instruction seemed to be well organized and presented, and in most of the subjects of instruction a reasonably satisfactory teaching equipment has been provided. The library facilities are totally inadequate, and the possibilities for scientific instruction in this community, especially in physiography and geology, have not been utilized. The technical work of the school—manual work, domestic training, and commercial work—seemed to be in a very satisfactory condition. The equipment is adequate for the work now undertaken, and the courses of instruction seemed to be as well adapted to the needs of the pupils as

conditions will at present permit. Each of these technical departments seemed to be awake to the necessity of a constant study of the needs of boys and girls in Butte, but the statistics presented in Chapter VI would indicate (Table XVI) that, for some reason, the technical work has not as yet made a very strong appeal to the pupils in the school.

The general criticism which the Survey commission would pass upon the high-school work is that it is too limited in scope, though any material expansion of the work of the school is almost impossible in the present already overcrowded building. As is pointed out in Chapter III, on Buildings and Equipment, the present high-school building is so poorly adapted to the needs of a modern high school that it would be a wise policy to turn the building into a central intermediate school, for the entire city, and to build a new high school, large enough to permit of the proper expansion of the high-school work. A large, centrally located high school, built on a full block of land instead of on a corner, and with good laboratories, a gymnasium, and an assembly hall attached, could easily be made the most important institution in this city for the education of the whole people.

In such a building many day and evening technical courses could be developed which would be of inestimable value to the working classes of Butte; the work of the high school in literary and historical lines could be improved; and the science courses in the school could be materially expanded and strengthened. With a well-organized intermediate school beneath the high school, and a larger and better equipped high-school organization, this school could in a short time exert a community influence which will never be possible for the present high school. A day-school attendance of 1,500 students, and an evening-school attendance of 2,000 youth and adults, is not too much to expect for such a school. With day and evening classes,

a good auditorium for public meetings and lectures, good laboratories, a good working library, and a good gymnasium, such a high school could profoundly influence the home life, the spiritual life, the commercial and industrial life, the trades and occupations, and the intellectual and civic future of Butte.

## CHAPTER IX

### THE ACHIEVEMENTS OF PUPILS

THE surest means of evaluating any element of the work of a school system is by measuring the results secured. The Survey commission, therefore, sought to measure the achievements of the children in the Butte schools in spelling, composition, handwriting, and the fundamental operations in arithmetic, as a means of verifying and supplementing their observations of the subject-matter and methods of instruction followed in the schools. By using standardized tests and scales for these measurements it was possible to make comparisons of the achievements of the pupils in Butte with those of pupils in other cities. It was possible, also, to determine the amount of progress being made from grade to grade in the schools of Butte, and the range of ability represented by the members of a given class. It was, of course, impossible to test all of the pupils in the city, but in the case of each of the subjects a sufficiently large sampling of children from the several grades was tested to make the conclusions valid for the city as a whole.

#### (1) SPELLING

##### *The Spelling Tests*

It is not easy to determine just what words ought to be taught to children. One thing is certain: The list of words should be limited, as far as possible, to those words which the children will be called upon to use in their written language. Until such lists are derived, we should at

least avoid all uncommon words in the spelling lessons. In line with this notion, the Survey commission used as a test in spelling, ten words for each grade, from the second to the eighth inclusive, chosen from a list of one thousand words most commonly used in English writing. All of the words were within the common understanding of the children, and familiar enough to appear in the written work of pupils of the respective ages. The lists of words used were derived by Dr. Leonard P. Ayres, of the Russell Sage Foundation, and used with his courteous permission. The method by which the ten words for each grade were selected from the long list was as follows: Under the direction of Dr. Ayres the long list of words was given throughout the grades of twenty-two city school systems. Naturally, certain words were found which approximately 70 per cent. of the children of a given grade were able to spell correctly. For example, the word "foot" was spelled by 70 per cent. of second-grade children, and missed by 30 per cent. Dr. Ayres selected ten such words for each grade. Thus the average rating on each word which appears in the lists below, was 70 per cent. for the twenty-two cities, as judged by the ten words finally selected. The standing of any school system in spelling may fairly be judged, in comparison with these twenty-two cities, by how much its several grades stand above or below 70 on the average.

### *The Word Lists Used*

The following words, selected as indicated above, were pronounced by the respective teachers to seven or eight classes in each of the grades:

Second Grade	Third Grade	Fourth Grade	Fifth Grade
foot get for horse out well name room left with	fill point state ready almost high event done pass Tuesday	forty rate children prison title getting need throw feel speak	several leaving publish o'clock running known secure wait manner flight

Sixth Grade	Seventh Grade	Eighth Grade
decide general manner too automobile victim hospital neither toward business	district consideration athletic distinguish evidence amendment liquor experience receive conference	organization tariff emergency corporation convenience receipt cordially discussion appreciation decision

### *Scoring of Papers*

After these words were pronounced, and any explanation given by the teacher necessary for their proper understanding by the children, the papers were collected and the misspelled words were marked by the teacher. The markings were checked by members of the commission. The standings of the several classes were then determined by taking the average of the standings of the pupils in any given room. These average room standings are given in Table XVIII.

TABLE XVIII

STANDINGS OF THE SEVERAL GRADES IN SPELLING ARRANGED BY SCHOOLS

	Schools by Numbers										Av.
	1	2	3	4	5	6	7	8	9	10	
Grade 2.....	89	..	73	..	..	80	98	89	86	93	86.2
Grade 3.....	72	..	77	..	..	88	75	80	82	88	81.8
Grade 4.....	75	79	87	78	79	..	73	78	..	..	78.7
Grade 5.....	77	86	80	84	86	..	91	88	..	..	84.5
Grade 6.....	66	72	74	77	81	..	73	82	..	..	75.0
Grade 7.....	75	76	80	78	73	77	74	78	..	..	76.2
Grade 8.....	84	..	82	..	..	76	91	82	84	80	89.4
Average.....	76.5	78.4	78.5	79.1	79.1	81.0	81.2	82.8	84.1	88.4	80.3

The ten schools in which the tests were given are designated in the table by numbers.<sup>1</sup> The average of all the pupils tested in any building is given at the foot of the column for that school, while the average of all the pupils of a given grade tested in the city is given at the right of the table.

### The Results

From this table it will be observed that in every room except one the children averaged considerably above the standing of 70. This fact is clearly brought out in the graphical representation of this table in Figure 14. In this figure the upper line represents the average standing of the best class in each grade, while the lower line represents the average of the weakest class in each grade. The dotted line between shows the average for each grade, while the heavy line at 70 represents the standing in twenty-two

<sup>1</sup> A key by which to determine the school corresponding to any given number will be left at the office of the City Superintendent.

It may be noted that the rooms selected for testing in this, as in other subjects, were determined by the order in which the teachers' names appeared in the teachers' directory. A uniform method was used by all members of the commission, thus avoiding anything but a random selection of rooms.



PER CENT.

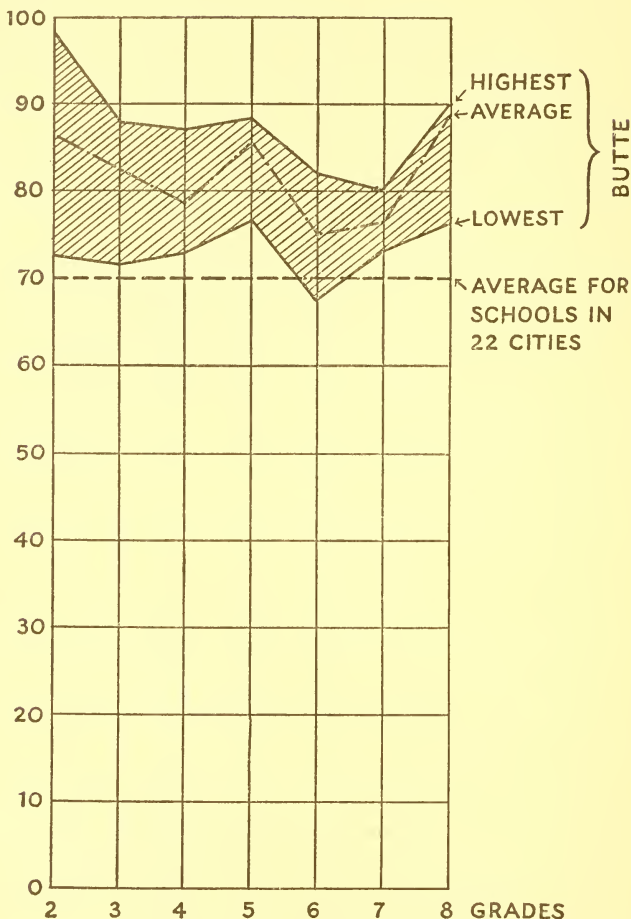


FIG. 14. RESULTS OF SPELLING TESTS

This figure represents the range from the poorest to the best room tested in each grade in spelling. For example, the poorest second-grade room averaged 73, while the best second-grade room averaged 98. The average for the whole city is represented by the dotted line, while the average for 22 cities is represented by the heavy line at 70.

cities. This furnishes evidence of the efficient drill work done throughout the system, and supports the commendation given to this type of work in the section of this report dealing with the Quality of Instruction, Chapter VII.

While the schools and rooms are high, on the average, a condition is revealed by closer analysis of the results which should have attention. Of the 1,504 children tested, 326 spelled every word correctly. On the other hand, 278 children made a standing of 60 or less. This wide variation in ability to spell raises the question whether the drill work in spelling is really being adapted to the pupils, or whether the drill is not being given to all children alike, regardless of whether they are all in equal need of such drill.

## (2) COMPOSITION

### *The Composition Test*

The same children who took the spelling tests (omitting the second and third grades) were asked to write English compositions. The directions for the test were given to the children by a member of the Survey commission. In order to give all children an equal chance to write the best compositions of which they were capable, the members of the commission agreed beforehand upon the subject to be used, the sort of directions to be given, and the amount of time which would be allowed. The subject used was:

"How I would spend one hundred dollars, to please five persons, who like different things."

The subject was chosen because it seemed to provide equal play for the imaginative powers of all the children. After the subject was written upon the blackboard, the children were allowed a few minutes to ask any questions. They were told to treat the subject in any way they fancied, just so that they made an interesting story out of it. They were allowed twenty-two minutes in which to write.

*Scoring the Papers*

After the compositions were thus written and collected, each one was stamped with a code number, indicating building and grade, and then the whole lot shuffled so as to mix thoroughly the papers from the various schools and grades. This done, they were ready for scoring.

The teachers of the city were then called together to mark the papers. About one hundred teachers were engaged in rating compositions under the direction of a member of the Survey commission. The Hillegas Scale<sup>1</sup> for measuring the merit of English compositions was used as a basis for scoring. This scale consists of ten compositions printed one below the other in the order of their merit. The three at the lower end of the scale were selected from samples artificially constructed by adults in order to secure compositions of zero or nearly zero value. All of the others were selected from a large number of compositions written by young people. The scale represents ten practically equal steps of merit because, in the opinion of over a hundred competent judges who read eighty-three of the compositions, these ten were most nearly of equal difference from each other in merit. Teachers compared the children's compositions with the compositions appearing on the scale. When they had decided which one on the scale most nearly corresponded in general merit to the one they were rating, they marked the composition at 0, 1, 2, 3, etc., according to which one of the printed compositions they thought it most like.

The papers were all scored thus by the teachers. Members of the commission examined enough of the marks to assure themselves that the scoring was fairly done. The papers were then reassembled into room groups, and the scores transcribed.

The distributions of the marks given to pupils of the various grades are recorded in Table XIX.

<sup>1</sup> Milo B. Hillegas, *A Scale for the Measurement of English Composition*. Teachers College Record, New York, 1912.

TABLE XIX  
DISTRIBUTION OF COMPOSITION SCORES BY GRADES

	Grades					
	4	5	6	7	8	
Rated at 0.....	3	1	..	2	1	.....
Rated at 1.....	79	46	31	17	9	.....
Rated at 2.....	66	86	67	63	32	.....
Rated at 3.....	30	49	65	84	39	.....
Rated at 4.....	3	18	35	68	43	.....
Rated at 5.....	..	1	23	19	22	.....
Rated at 6.....	..	..	6	7	6	.....
Rated at 7.....	..	..	..	2	2	.....
Rated at 8.....	..	..	..	..	..	.....
Rated at 9.....	..	..	..	..	..	.....
Total papers.....	181	201	227	262	154	1,025
Median score.....	2.34	2.80	3.41	3.77	4.11	.....

NOTE. The true values, statistically determined, of each step of the scale, are not exactly represented by the digits at the left of the table. The true values are: 0, 1.83, 2.60, 3.69, 4.74, 5.85, 6.75, 7.72, 8.38, and 9.37.

While there was considerable variation among the classes making up each grade group, this table of totals is essentially typical of the performance of each class. It will be observed that, of the 181 fourth-grade children tested, 3 wrote papers rated at 0, 79 wrote papers rated at the first step above 0, 66 wrote papers rated at 2, and so on. The median score (that point in the distribution of marks below which half the papers fall, and above which half the papers fall, being practically the same as the average) for the fourth-grade group is seen to be 2.34 on the scale from 0 to 10. The median scores for each of the grades is seen to be:

	Median Scores
Fourth Grade .....	2.34
Fifth Grade .....	2.80
Sixth Grade .....	3.41
Seventh Grade .....	3.77
Eighth Grade .....	4.11

The low scores, as well as the slight gain from grade to grade, is apparent.

A very wide range of ability in each grade is revealed in the table. One eighth-grade pupil wrote a composition rated at 0, while two pupils wrote papers rated at 7 on the scale of 10. The eighth-grade group range rather evenly over all the steps of the scale from 1 to 6. This wide variation of ability represented in each of the grades is clearly brought out in the accompanying figure. There we see that some fourth-grade pupils surpass the median ability of eighth-grade pupils, while many eighth-grade pupils fall below the median ability of the fourth-grade pupils.

### *Typical Compositions Written by Butte Children*

Before commenting upon these results, it may be well to consider how much merit a composition has when rated at the successive steps from 0 to 10. This can best be told by reproducing compositions written by the children in Butte, which were rated by the teachers at the several points on the scale. In selecting these samples, effort was made to secure the ones most typical of the marks assigned to them by the teachers.

Sample 1, rated at 1 (that is, the first step above 0); written by a sixth-grade boy, 14 years old.

"I would by each person twenty dollars worth the goods, or I would give each person twenty dollars. If I would spend the one hundred dollars between the five persons, I would buy each one a suit of clothes, shoes, stockings, Caps, Over Alls and Jumper."

Sample 2, rated at 2; written by a seventh-grade girl, 13 years old.

"If I had a hundred dollars I would divid it between five people. I would give \$20 to the one who like everything, \$5 to the one that liked nothing and \$10. to on who

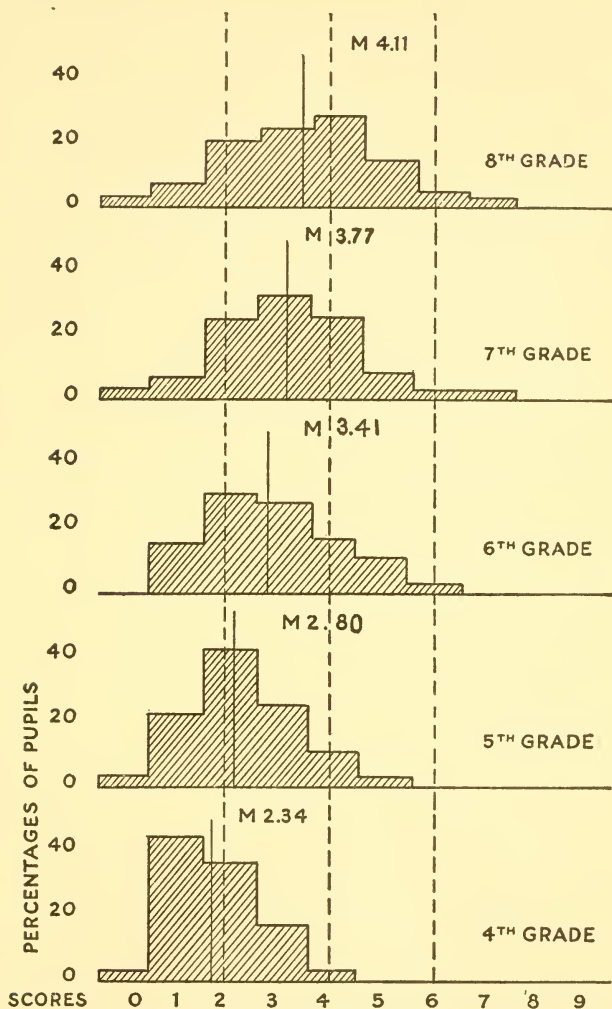


FIG. 15. RESULTS OF COMPOSITION TESTS

This figure represents the percentage of children in the several grades who made the given scores in composition. For example, 1.7% of the fourth-grade children wrote compositions scored at 0; 43.8% of the fourth-grade children were scored at 1; etc. By following the median lines, the overlapping of ability from grade to grade is disclosed.

liked Arithmetic and \$33 to the one for spelling, and \$32 for the one who liked Geography."

Sample 3, rated at 3; written by a fifth-grade girl, 12 years old.

"If I had one hundred dollars, I would take five persons up to symons and spend twenty dollars on each person. and they could have anything they liked to buy. After they had bought what they wanted, I would ask them if they were pleased? and if they said no I would tell them to go back and change the dry-goods, that they had bought and buy exactly what they really wanted, or needed, and if they were not satisfied then I could do no more for them because my hundred dollars would be spent."

Sample 4, rated at 4; written by an eighth-grade boy, 14 years old.

"If I had one hundred dollars to spend to please five persons I would first kind of figure out what the things a certain five persons would like best.

"First I would buy my cousin what he wished, that is a good baseball outfit. It would cost about ten dollars for the playing materials such as gloves, bats, etc. Then I would get him a five dollar baseball suit and cap to match. He would like a lot of candy and fruit and such things so I would spend another five for that.

"Second I would by my brother a good fishing outfit consisting of a five dollar pole, a one dollar, line, two dollar, reel, two dollars worth of hooks, five dollar pair of boots, two dollar fishing coat, a dollars worth of leaders and two dollars for a trip to some good fishing place.

"Third I would fit myself out in the same way.

"Fourth I would get my father a morrison chair for ten dollars, and a smoking jacket for ten more.

"Fifth as I have no mother I would get my aunt a new hat with ten dollars and a new silk dress with the rest of the money."



Sample 5, rated at 5; written by an eighth-grade girl, 15 years old.

"There are five little children that live near us who are very poor. They seldom have any new clothes and less often any toys.

"On Christmas and other days when we children have toys these children may be seen looking at us with longing eyes, and Easter time they even seem envious.

"Well I would first buy each child a pair of shoes about three and one half dollars. Then I would buy the girls, three of them, new dresses. The boys new suits. Which would cost about thirty dollar. Of course the girls would have to have hats. I would get simple ones but pretty. Then the boys must have caps....."

Sample 6, rated at 6; written by an eighth-grade girl, 14 years old.

"If I had one hundred dollars to spend for persons who liked different thing, I would spend about one-half of the sum for a short camping trip for myself and parents.

"With the remainder of the money I would buy a few good books and other articles I desire. I would use part of the money for spending money throughout the summer, and, if after this, there were any of it left I would use it for things I needed at the beginning of school."

Sample 7, rated at 7; written by a seventh-grade girl, 13 years old.

"I read a pamphlet once upon how to spend money wisely, in benefiting other people, so as I have received \$100.00 I intend to spend it wisely.

"Yesterday I went to a German family, who were strangers here, having just come from Germany, and needed help very badly. The mother was a kind motherly looking woman, who I know I could depend upon, so giving her a check for \$40.00 for clothing and food, I departed, leaving their faces shining with relief and gratitude.

"That evening, coming home I met two ragged, but clean looking children, one of them crying very bitterly, so stopping I asked them what was the matter, the little girl said, 'I am looking for a doctor.' Then she began crying. I took her and the little boy home with me, which was not very far away, and then I told her to tell me all about it. Mother fell down the cellar this morning, and broke her arm, she sent me for the doctor, but I cant find him, and if I did we wouldn't be able to pay for it."

There were no compositions rated higher than 7 by the teachers, even though, on the whole, their marks were liberal.

### *Evaluation of the Composition Work*

A study of the table giving the ratings upon compositions written by the children of Butte, along with an examination of the sample compositions reproduced to illustrate the merit of each position on the scale, reveals four facts which are worthy of note:

First, the composition work is formal, rather than free and imaginative.

Second, the marks fall low on the scale, throughout the grades. While no standard of achievement has yet been established with which to compare the ratings of the several grades in Butte, certain fifth-grade classes in Maryland have been found to average 5.15 as compared with 2.80 for the fifth grades in Butte. Also, certain seventh-grade classes in Maryland and New York City have been found to average 5.75 to more than 7.0, as compared with 3.76 for the seventh grade in Butte.<sup>1</sup>

Third, there is relatively little growth from one grade to the next, the median score being raised less than two points from fourth to eighth grade.

Fourth, the wide variation in ability among the children

<sup>1</sup> F. J. Kelly, *Teachers' Marks, Their Variability and Standardization*. Teachers College Contributions to Education; New York, 1914.

in any one grade raises the question here which was suggested in connection with spelling, whether due attention is being given to the individual needs of the children, or whether the instruction is not being given to all members of the class alike, regardless of whether such instruction reaches the children's individual needs.

The marked contrast between the excellent results in spelling and the results in composition probably means that the formal side of instruction is being stressed at the expense of initiative and self-expression on the part of the pupils. In no other phase of school work is the harmful influence of repressing the child's individuality more clearly reflected than in his written language. Practice in expressing thoughts *which are his own* is the only way by which a child can develop the power to write and speak good English. Repeating from memory facts in geography, history, or science is not closely related to the task of organizing one's own thoughts. Even a thorough knowledge of all the rules of grammar does not insure the writing of good English.

### (3) PENMANSHIP

#### *The Penmanship Tests*

To secure specimens of handwriting by which to judge of the efficiency of the penmanship work done in the schools, all of the teachers in the elementary schools above the first grade were asked to have the children write, as carefully as they could, a familiar stanza which the teacher wrote on the blackboard. Afterwards, the children were to write the same stanza over and over again for four minutes, as rapidly as they could, "*still writing well.*" In the following discussion, only the careful writing will be considered, because it appears from an examination of the speed-writing specimens that the time limit was not carefully observed by some of the teachers.

The papers were collected and stamped with a code

number by which to identify the building and grade. About a third of the papers from each room were then shuffled so as to mix thoroughly the papers from the various buildings and grades. About eighty teachers then scored the papers under the direction of a member of the Survey commission.

### *Scoring the Papers*

The Thorndike Scale<sup>1</sup> for the measuring of handwriting was used as a means of scoring the papers. This scale consists of reproductions of samples of handwriting, ranging in merit from 0 to 18. At most of the points on the scale two or three samples of different styles of writing are reproduced. The samples were selected, because in the opinions of many competent judges the differences in merit between the samples appearing at the successive steps on the scale are approximately equal. When the teacher rating a paper determined to which one of the samples on the scale the child's paper most nearly corresponded in merit, she marked the paper with the score attached to that sample on the scale. Thus the papers were all rated between 0, which was completely illegible, and 18, which was practically perfect handwriting.

### *The Results*

In Table XX, given on the next page, are given the distributions of the scores made by the pupils of the successive grades from second to eighth inclusive.

It will be observed from this table that the median scores for the several grades are as follows:

Second Grade .....	8.2
Third Grade .....	8.0
Fourth Grade .....	8.8
Fifth Grade .....	8.9
Sixth Grade .....	11.6
Seventh Grade .....	11.2
Eighth Grade .....	12.1

<sup>1</sup> E. L. Thorndike, *Handwriting*. Teachers College Record; March, 1910.

TABLE XX

THE DISTRIBUTIONS OF SCORES IN PENMANSHIP BY GRADES

Scores	Grades						
	2	3	4	5	6	7	8
0.....	..	..	..	..	..	..	..
1.....	..	..	..	..	..	..	..
2.....	..	..	..	..	..	..	..
3.....	..	..	..	..	..	..	..
4.....	5	2	..	..	..	..	..
5.....	22	2	3	3	..	1	..
6.....	21	21	16	3	2	..	1
7.....	29	44	24	12	1	3	3
8.....	28	86	42	56	20	15	7
9.....	42	41	55	61	25	29	15
10.....	7	8	20	16	9	11	1
11.....	29	13	21	17	32	25	23
12.....	5	2	15	15	44	12	21
13.....	7	2	2	6	17	19	9
14.....	..	..	3	4	10	16	9
15.....	..	..	1	..	9	6	15
16.....	1	..	..	1	10	12	17
17.....	..	..	..	..	6	2	3
18.....	..	..	..	..	3	1	..
Total papers.....	196	221	202	194	188	152	124
Median scores....	8.2	8.0	8.8	8.9	11.6	11.2	12.1

This indicates a rather singular irregularity in the progress made from grade to grade. Of the 3.9 points improvement from the second to the eighth grade, 2.7 points are made between the fifth and sixth grades.<sup>1</sup> There is no certainty, of course, that this should not be so. If, however, there is a particular period in the development of the child at which habits, such as handwriting, can be so much more readily fixed than at other times, then drill should be curtailed at other points and concentrated upon that period.

<sup>1</sup> This may be partially accounted for by the fact that No. 10 on the scale has only one specimen representing that degree of merit, while the steps on either side of it have more than one specimen. Therefore, judgments tend to bunch up both above and below 10.

The problem is so clearly indicated in these results that effort should be directed toward its solution by further investigation.

As in spelling and composition, a very wide range of abilities in penmanship is found in each grade. This is best represented in Figure 16.<sup>1</sup> Some children in the second grade surpass the ability of the median eighth-grade pupil, while some in the eighth grade fall below the median second-grade pupil. This variability may be accounted for by two facts:

First, some classes average much better than others in the same grade. For example, one second-grade class averaged 5, while another second-grade class averaged 11. In the same way one eighth-grade class averaged 9, while another eighth-grade class averaged 16.

Second, the observation of members of the commission while they were visiting the schools did not disclose any case where practice in penmanship was limited to those in the class who needed it. The children who could write very well were spending the same time as the others upon *exercises*.

One other feature of the penmanship deserves attention. The letters which are formed out of the much practiced oval are nicely made by the children, as a rule. The general character of the writing, however, reveals a lack of control of letter forms. It would seem that, in many cases, practice in writing words and sentences as they occur in the regular daily work of the pupils is not given the attention it deserves. The formal drill on muscular exercises is overemphasized. This does not mean a condemnation of the muscular-exercise drill, but it does mean its subordination to the exercises in real writing.

<sup>1</sup> This figure represents the percentage of children in any grade who attained each of the given scores in penmanship. For example, of the second-grade children, 2.4% wrote papers scored at 4; 11% of the second-grade children were scored at 5, etc. Note that the median mark for the successive mark changes little at any other point than from fifth to sixth grades.

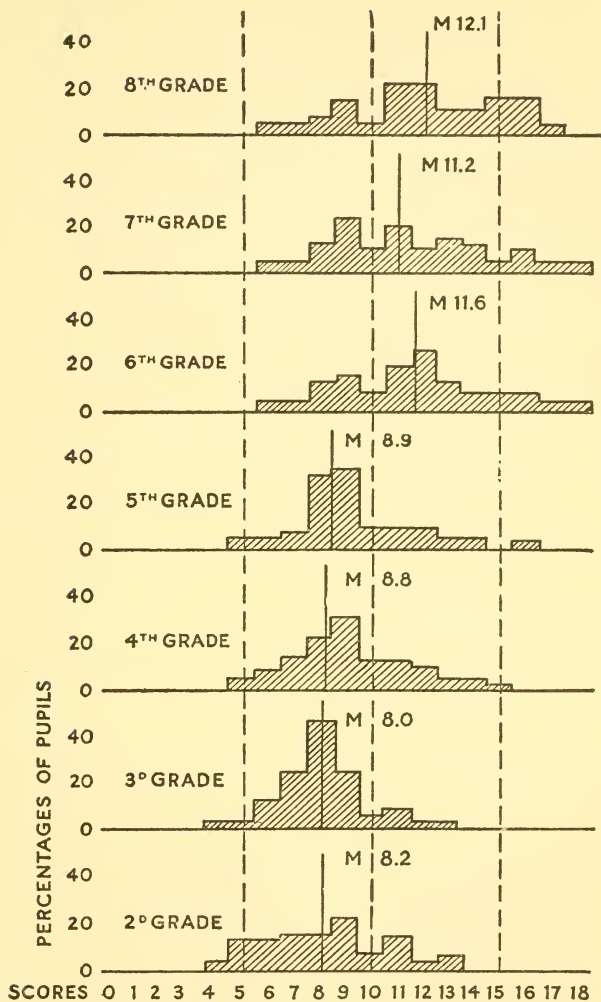


FIG. 16. RESULTS OF PENMANSHIP TESTS



## (4) ARITHMETIC

*The Arithmetic Tests*

As a measure of the achievements of the children in arithmetic, the Courtis Standard Tests<sup>1</sup> (Series B) in the four fundamental operations, and the Stone Reasoning Problems,<sup>2</sup> were used. They were given in two rooms in each of ten buildings. The following numbers of classes were thus examined, selected at random:

5	5B	classes
5	5A	classes
5	6B	classes
7	6A	classes
3	7B	classes
3	7A	classes
4	8B	classes
5	8A	classes

Following are the lists of examples and problems as they were given to the pupils. They were printed on good paper so that the children did not have to copy the figures, but simply did their work on the sheets which contained the examples. Blank paper was provided on which to solve the reasoning problems. The following time limits were followed exactly in all of the rooms:

For addition, 8 minutes.

For subtraction, 4 minutes.

For multiplication, 6 minutes.

For division, 8 minutes.

For reasoning, 15 minutes.

<sup>1</sup> S. A. Courtis, *Standard Tests*, 82 Eliot St., Detroit, Mich.

<sup>2</sup> C. W. Stone, *Arithmetical Abilities and Some Factors Determining Them*. Teachers College, Columbia University, 1908.

Addition

927	297	136	486	384	176	277	837
379	925	340	765	477	783	445	882
756	473	988	524	881	697	682	959
837	983	386	140	266	200	594	603
924	315	353	812	679	366	481	118
110	661	904	466	241	851	778	781
854	794	547	355	796	535	849	756
965	177	192	834	850	323	157	222
344	124	439	567	733	229	953	525
<hr/>							
537	664	634	572	226	351	428	862
695	278	168	253	880	788	975	159
471	345	717	948	663	705	450	383
913	921	142	529	819	174	194	451
564	787	449	936	779	426	666	938
932	646	453	223	123	649	742	433
559	433	924	358	338	755	295	599
106	464	659	676	996	140	187	172
228	449	432	122	303	246	281	152
<hr/>							
677	223	186	275	432	634	547	588
464	878	478	521	876	327	197	256
234	682	927	854	571	327	685	719
718	399	516	939	917	394	678	524
838	904	923	582	749	807	456	969
293	353	553	566	495	169	393	761
423	419	216	936	250	491	525	113
955	756	669	472	833	885	240	449
519	314	409	264	318	403	152	122

Subtraction

107795491	75088824	91500053	87939983
77197029	57406394	19901563	72207316
<hr/>			
160620971	51274387	117359208	47222970
80361837	25842708	36955523	17504943
<hr/>			
115364741	67298125	92057352	113380936
80195261	29346861	42689037	42556840
<hr/>			
64547329	121961783	109514632	125778972
48813139	90492726	81268615	30393060
<hr/>			
92971900	104339409	60472960	119811864
62207032	74835938	50196521	34379846
<hr/>			
137769153	144694835	123822790	80836465
70176835	74199225	40568814	49178036

## Multiplication

8246 29	3597 73	5739 85	2648 46	9537 92
4268 37	7593 640	6428 58	8563 207	2947 63
5368 95	4792 84	7942 72	3586 36	9742 59
6385 48	8736 502	5942 39	6837 680	4952 47
3876 93	9245 86	7368 74	2594 25	6495 19

## Division

25)6775	94)85352	37)9990	86)80066
73)58765	49)31409	68)43520	52)44252
37)14467	86)60372	94)67774	25)9750
68)39508	49)28420	52)21112	73)33653
28)23548	54)48708	39)32760	67)61707
45)33795	76)57000	93)28458	82)29602

## Reasoning Problems

1. If you buy 2 tablets at 7 cents each and a book for 65 cents, how much change should you receive from a two-dollar bill?

2. John sold 4 *Saturday Evening Posts* at 5 cents each. He kept  $\frac{1}{2}$  the money and with the other  $\frac{1}{2}$  he bought Sunday papers at 2 cents each. How many did he buy?

3. If James had 4 times as much money as George, he would have \$16. How much has George?

4. How many pencils can you buy for 50 cents at the rate of 2 for 5 cents?

5. The uniforms for a baseball nine cost \$2.50 each. The shoes cost \$2 a pair. What was the total cost of uniforms and shoes for the nine?

6. In the schools of a certain city there are 2,200 pupils;  $\frac{1}{2}$  are in the primary grades,  $\frac{1}{4}$  in the grammar grades,  $\frac{1}{8}$  in the high school, and the rest in the night school. How many pupils are there in the night school?

7. If  $3\frac{1}{2}$  tons of coal cost \$21, what will  $5\frac{1}{2}$  tons cost?
8. A news dealer bought some magazines for \$1. He sold them for \$1.20, gaining 5 cents on each magazine. How many magazines were there?
9. A girl spent  $\frac{1}{8}$  of her money for car fare, and three times as much for clothes. Half of what she had left was 80 cents. How much money did she have at first?
10. Two girls receive \$2.10 for making buttonholes. One makes 42, the other 28. How shall they divide the money?
11. Mr. Brown paid  $\frac{1}{3}$  the cost of a building; Mr. Johnson paid  $\frac{1}{2}$  the cost. Mr. Johnson received \$500 more annual rent than Mr. Brown. How much did each receive?
12. A freight train left Albany for New York at 6 o'clock. An express left on the same track at 8 o'clock. It went at the rate of 40 miles an hour. At what time of day will it overtake the freight train if the freight train stops after it has gone 56 miles?

The peculiar virtue of these lists of examples in the fundamentals lies in the fact that they are so devised that in each example of a given sort there are an equal number of combinations called for, and these include similar assortments of difficult and easy combinations. Because of this fact, it is just as much of an achievement to work one as it is to work any other one. Therefore, the child who works ten has achieved exactly twice as much as the child who has worked five.

In the reasoning problems the same principle holds except that, instead of all of the problems being of equal difficulty, an assigned value has been worked out experimentally for each one, so that it is possible to say how much more credit should attach to the correct solution of one than to the correct solution of another.

This being the case, it follows that, if the same time be given to the several pupils, the number of examples completed in the fundamentals, or the score in reasoning, furnishes a fair basis of comparison between the achievement of one child and that of another, or of one class with that of another. It is not claimed that these tests cover all that teachers are expected to teach in arithmetic, but it is claimed that successful teaching in arithmetic cannot be done without developing skill in the fundamental operations and ability in the simple, everyday forms of reasoning.

*Scoring the Papers*

The marking of the papers in the fundamentals was done, also, by a group of teachers under the direction of a member of the Survey commission. Printed answer sheets were provided each teacher, and every example was checked as either right or wrong. No credit was given for an answer which was only partially right. The reasoning problems were scored by members of the commission.

*The Results*

In the Tables XXI, XXII, and XXIII are given the distributions of the number of examples worked correctly by the children of the various grades. The B and A classes are combined for each group, in order to make the results comparable with the return from other cities reporting by grades. From these tables we see that there is a fairly steady gain from grade to grade in both fundamentals and reasoning. At the same time, there are seen to be 12 pupils in the fifth grade, 15 in the sixth grade, 5 in the seventh grade, and 4 in the eighth grade who could not finish one example in addition correctly in eight minutes. A similar situation is revealed in the other fundamental operations.

While these children above mentioned were not able to finish a single example, there were others who completed twice as many as the average members of the class. This holds true for every operation in the fundamentals and for reasoning problems as well. This condition must result in a very great waste of time during arithmetic periods where so often all of the members of the class wait for the slow ones to complete the problem before new work is assigned. Considerable improvement can be effected if the work in arithmetic is varied for the members of the class so as to give each child, as far as possible, the sort of work which he most needs. It is one of the sources of greatest waste in our schools today that we give to all the children of a class

TABLE XXI

THE DISTRIBUTIONS OF THE NUMBER OF EXAMPLES CORRECTLY FINISHED  
IN THE GIVEN TIME BY PUPILS IN THE SEVERAL GRADES

<i>Addition</i>					<i>Subtraction</i>				
No. of Exam- ples Finished	5	6	7	8	No. of Exam- ples Finished	5	6	7	8
0.....	12	15	5	4	0.....	6	2	2	..
1.....	26	23	14	9	1.....	5	6	2	1
2.....	27	31	8	6	2.....	7	8	1	..
3.....	31	27	27	9	3.....	13	21	3	1
4.....	25	28	19	16	4.....	21	18	13	2
5.....	16	23	15	16	5.....	26	30	12	7
6.....	15	22	12	12	6.....	17	27	15	9
7.....	1	11	8	9	7.....	15	27	18	9
8.....	3	4	6	11	8.....	15	20	12	12
9.....	1	2	3	8	9.....	10	13	9	12
10.....	..	..	..	6	10.....	8	6	13	11
11.....	..	..	1	..	11.....	6	2	3	12
12.....	..	..	1	2	12.....	3	1	7	9
13.....	..	..	..	..	13.....	2	2	3	5
14.....	..	..	..	..	14.....	1	1	3	7
15.....	..	..	..	2	15.....	..	..	2	3
16.....	..	..	..	1	16.....	..	..	1	2
17.....	..	..	..	..	17.....	..	1	..	1
18.....	..	..	..	..	18.....	..	..	..	1
19.....	..	..	..	..	19.....	..	..	..	4
20.....	..	..	..	..	20.....	..	..	..	2
21.....	..	..	..	..	21.....	..	..	..	1
22.....	..	..	..	..	22.....	..	..	..	..
Total papers.	157	186	119	111	.....	155	185	119	111
Median scores	3.4	3.9	4.3	5.8	.....	6.0	6.3	7.6	10.3

the same work, without considering whether a large number of the class might not profit much more by doing something else. There is less excuse for giving uniform instruction and work to the members of a class in arithmetic, than in most of the other subjects.

It must not be supposed that effort should be made to bring all the members of a class to the *same* standard of excellence in any subject. We are not urging that teachers

TABLE XXII

THE DISTRIBUTIONS OF THE NUMBER OF EXAMPLES CORRECTLY FINISHED  
IN THE GIVEN TIME BY PUPILS IN THE SEVERAL GRADES

<i>Multiplication</i>					<i>Division</i>				
No. of Exam- ples Finished	5	6	7	8	No. of Exam- ples Finished	5	6	7	8
0.....	10	4	..	..	0.....	17	7	1	..
1.....	10	4	3	..	1.....	19	17	2	1
2.....	19	20	5	1	2.....	18	22	8	4
3.....	21	17	11	5	3.....	21	26	6	2
4.....	28	31	16	3	4.....	25	27	8	6
5.....	26	34	12	13	5.....	21	27	11	7
6.....	24	27	13	13	6.....	9	15	12	4
7.....	9	20	16	10	7.....	10	15	16	8
8.....	5	14	21	19	8.....	6	7	20	9
9.....	3	9	11	13	9.....	4	7	11	6
10.....	..	4	6	10	10.....	4	9	7	13
11.....	1	..	2	9	11.....	1	3	3	7
12.....	..	..	2	6	12.....	..	2	10	10
13.....	..	..	1	3	13.....	..	2	..	10
14.....	..	..	..	3	14.....	1	..	1	4
15.....	..	..	..	..	15.....	..	1	2	9
16.....	..	..	..	1	16.....	..	..	..	2
17.....	..	..	..	..	17.....	..	..	..	4
18.....	..	..	..	1	18.....	..	..	..	2
19.....	..	..	..	1	19.....	..	..	..	1
20.....	..	..	..	..	20.....	..	..	..	1
21.....	..	..	..	..	21.....	..	..	..	1
22.....	..	..	..	..	22.....	..	..	..	..
Total papers.	156	184	119	111	.....	156	187	118	111
Median scores	4.6	5.5	7.0	8.6	.....	4.1	4.8	7.7	10.7

attempt to produce equal skill in arithmetic among all the members of their classes. However, when some children now in the fifth grade far surpass already the average ability of eighth-grade pupils, it is surely a waste of their good time to be doing the same arithmetic work which is best adapted to those members of the class who can complete no examples in the fundamental processes. To show clearly this overlapping of ability in the successive grades, Figure



TABLE XXIII

THE DISTRIBUTION OF SCORES MADE BY PUPILS IN THE SEVERAL GRADES  
*Reasoning Problems*

Scores	Grades			
	5	6	7	8
0.....	30	7	..	..
1.....	30	20	2	1
2.....	27	21	10	2
3.....	26	30	13	5
4.....	21	35	12	5
5.....	10	24	17	13
6.....	8	14	20	14
7.....	1	12	14	13
8.....	1	14	12	16
9.....	1	2	6	10
10.....	..	3	4	10
11.....	..	1	4	7
12.....	..	1	2	6
13.....	1	1	3	4
14.....	..	1	..	4
15.....	..	..	..	1
16.....	..	..	..	..
Total papers.....	156	186	119	111
Median scores.....	2.7	4.4	6.3	8.2

17 is given, representing the distributions of multiplication scores of the various grades. Any other one of the processes could have been used just as well to show how many there are in each grade who surpass the average ability of the classes above them, or fall below the average of the classes below them.

If we can turn the schoolroom into a sort of workshop where each child will be encouraged to seek out problems of keenest interest to himself, and where the teacher will seek to guide in the doing of those things *most needful to him*, we shall avoid some of the present evils of our lock-step system of instruction, where each child does just the same as every other child.

The question naturally arises whether the median score for the children of Butte is higher or lower than that achieved by children of the same grades in other cities. Mr. Courtis, the author of the tests in fundamentals used in Butte, has tested with the same examples and under the same conditions, 1315 children in Detroit, 20,441 in Boston, and 3618 in other smaller places. Table XXIV gives the median scores made by the several grades in these cities, and along with them, the corresponding scores made in Butte.

TABLE XXIV

THE MEDIAN SCORES MADE BY CHILDREN IN DETROIT, BOSTON, A GROUP OF SMALLER CITIES, AND BUTTE, IN WORKING THE SAME EXAMPLES IN THE SAME AMOUNT OF TIME

*Addition*

	Grades			
	5	6	7	8
Detroit.....	3.9	4.6	5.4	6.7
Boston.....	3.7	4.9	5.6	7.8
Other cities.....	3.9	4.4	4.7	5.6
Butte.....	3.4	3.9	4.3	5.8

*Subtraction*

Detroit.....	5.5	6.2	7.3	9.5
Boston.....	4.9	6.3	6.9	8.6
Other cities.....	4.5	6.1	7.8	8.4
Butte.....	6.0	6.3	7.6	10.3

*Multiplication*

Detroit.....	3.8	4.8	6.0	7.5
Boston.....	3.3	4.8	5.1	6.5
Other cities.....	2.6	4.5	5.2	6.4
Butte.....	4.6	5.5	7.0	8.6

*Division*

Detroit.....	2.7	4.4	7.1	8.8
Boston.....	2.0	3.3	5.1	6.9
Other cities.....	2.3	4.3	5.8	6.3
Butte.....	4.1	4.8	7.7	10.7

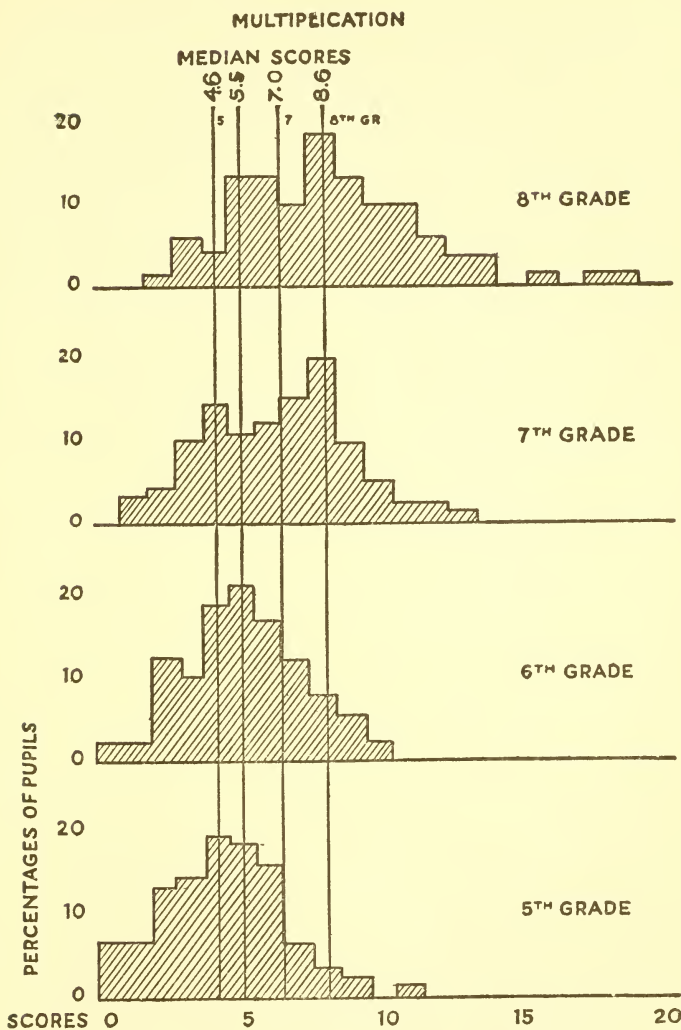


FIG. 17. Representing the percentage of children in the various grades making the given scores in multiplication. For example, 7% of the fifth-grade children make a score of 0; 7% make a score of 1; etc. The overlapping of ability from grade to grade is clearly shown.

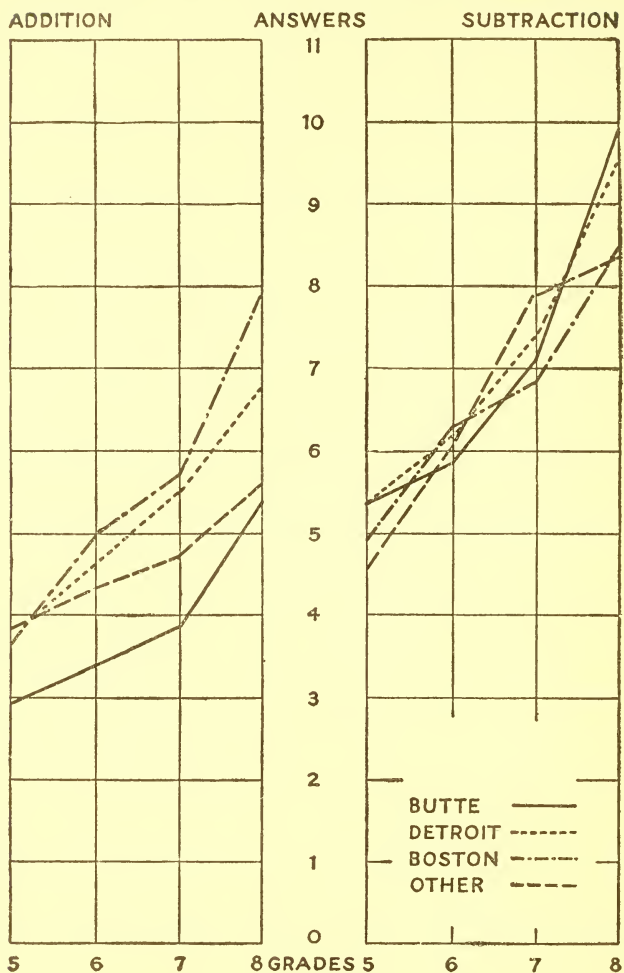


FIG. 18. Representing the achievements of four groups of children, the Butte children being one group, in addition and subtraction. For example, in addition, the fifth-grade children of Butte average 3.4 examples finished correctly in the time allowed; Boston averages 3.7; Detroit and the other group both average 3.9.

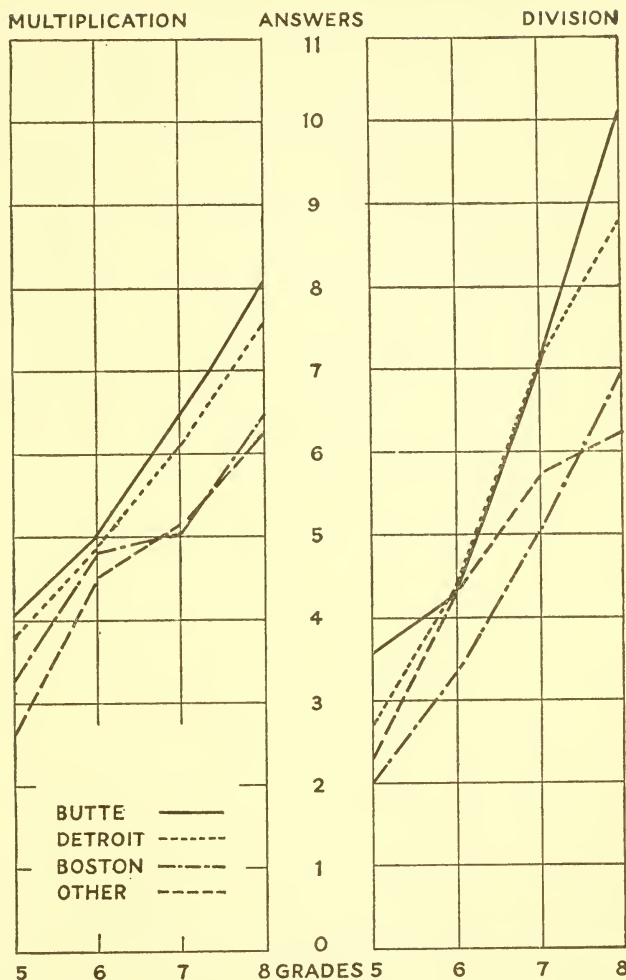


FIG. 19. This represents the achievements of four groups of children in multiplication and division. To be read the same as Figure 18.

The facts of this table are clearly set forth in Figures 18 and 19. It is clear that the results, so far as average or median score is concerned, are very satisfactory in Butte in the fundamentals. While Butte stands a little low in addition, and equal to or above the other cities in subtraction, the standings are high in multiplication and division.

Unfortunately, so much cannot be said for the results in the reasoning problems. Here again the city is paying the price of too much formal work and too little independent thought work. The papers were full of errors, and of a sort which indicated a lack of clear thinking. To illustrate this point, attention may be called to one error which was made by scores of children in all the grades. In so easy a problem as No. 5, which reads:

The uniforms for a baseball nine cost \$2.50 each. The shoes cost \$2.00 a pair. What was the total cost of uniforms and shoes for the nine?

many of the children worked as follows:

\$2.50 x 9 equals \$22.50 the cost of uniforms.

\$2.00 x 9 equals 18 the cost of shoes.

---

\$22.68 the total cost of uniforms and shoes.

Errors of the same sort abounded in most of the sets of papers. The number of problems attempted in the various grades was high, but the score was brought down very low by the great number of errors. There were enough rooms which proved exceptions to this rule, however, to indicate that some teachers have been emphasizing clear thinking instead of form work.

More than half the children in the schools worked fewer than four of the problems in the fifteen minutes allowed. Other children, on the contrary, worked most of them, and often without the use of pencil at all for the majority of the problems. We cannot believe that such wide variation

PROBLEMS INVOLVING REASONING

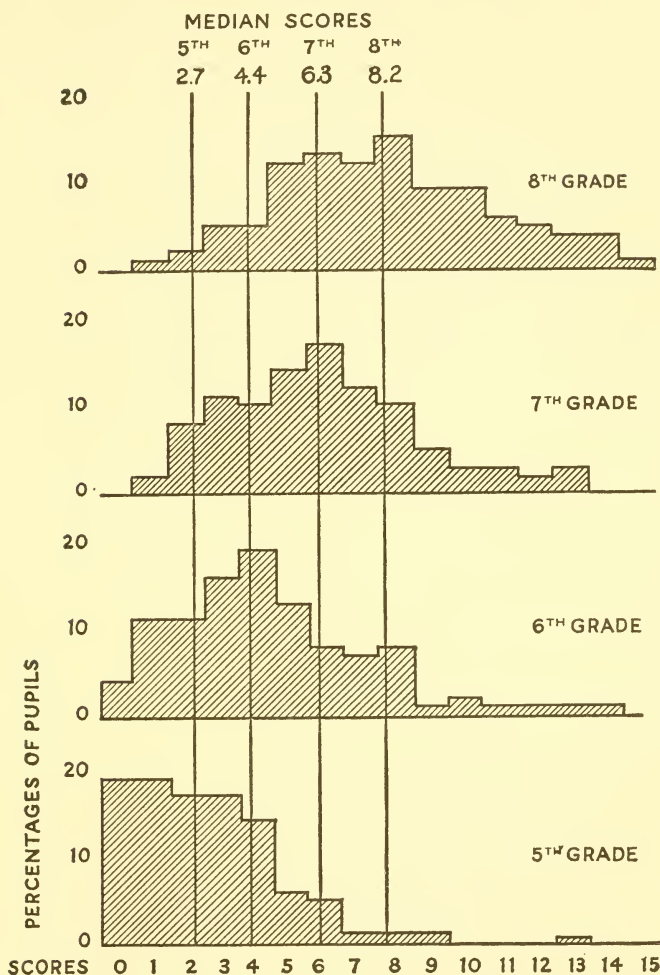


FIG. 20. Representing the percentage of children making the given scores in reasoning problems. For example, 10% of the fifth-grade children made a score of 0; 19% made a score of 1; etc. The lines representing the median scores for each grade tell about how many in each grade surpass the median scores for the grades above, and how many fall below the median scores for the grades below.



in ability would be found if the instruction were adapted to secure the development of the native ability in each child. In Figure 20 the amount of overlapping from grade to grade is clearly brought out, and we must here emphasize the urgent need for greater adaptation of the arithmetic work to the particular needs of the individuals making up any class group.

### (5) SUMMARY

As has been pointed out in the sections of this report dealing with the Courses of Study, Chapter VIII, and with the Quality of Instruction, Chapter VII, drill work in the schools is strong. This observation is verified by the high standing which the school system, as a whole, made in the tests in spelling, and the fundamental operations in arithmetic. Whether this drill work is done with the greatest economy of time and effort may be questioned a little in the light of the great variability which is present in the achievements of the members of the same class. No type of school exercise needs more careful adaptation to the individuals receiving it than does the drill lesson.

Some excellent penmanship work is done in Butte. However, the system of penmanship now being employed requires keen insight into the fundamental principles of habit formation, if teachers are to avoid some serious mistakes in its use. This insight is not universally shown by the teachers in the city. Excessive drill on the movement exercises, at the expense of daily practice in the writing of good papers, has led, in the case of many children, to failure of control over the muscles used in writing. The result is a general irregularity in letter formations and a domination of the forms used in drill exercises. Care upon this point will correct the work in many of the rooms which stand low. The penmanship will then be very satisfactory in the city as a whole.

In composition, and again in reasoning, we see revealed the results of what is perhaps the most serious error in the

teaching method now practiced in Butte. Filling children's memories with textbook facts does not make independent thinkers of them. Opportunity for self-expression should be freely given in kindergartens, and as freely given in all the grades above. What children think out for themselves is the main source of strength in later intellectual life. Except as the information in the textbooks can be utilized as material for independent thinking, it is of slight value indeed. It is through contact with nature in nature study and elementary science; through self-expression in drawing real things, singing and composing real songs, making with the hands useful objects which the child has originated in his own mind; and through making applications to the social situation around him, of the materials of history, geography, mathematics, and the other studies; it is through these things that the powers within a child grow. Experience in doing, and in independent thinking, furnishes the only adequate basis for expression. The solving of problems in nature study, geography, and history, as well as in arithmetic, is the only satisfactory training for the development of ability in reasoning.

In this connection it may be well to emphasize what has been said elsewhere in this report, concerning the influence of the examination system now in vogue in Butte. Whatever administrative device tends to encourage the *getting of facts for the sake of facts*, is almost certain to lead to undue emphasis upon formal instruction. Examinations should not be used in the elementary schools as a measure for determining promotion of pupils. As an illustration of the legitimate use of tests it may be interesting to cite the case of the Boston schools, where the progress in the fundamentals in arithmetic was measured by giving the Courtis Tests in January, and then again in April. By reference to Figures 18 and 19 it will be noted that Boston was weakest in division. That chart records the result of the January tests. Knowing this weakness, the teachers sought to remedy it. As a result, while the average gain between

January and April was 2.1 examples in addition, 1.8 in subtraction, and 2.0 in multiplication, it was 2.7 examples in division.

If, then, instead of using examinations to determine promotions, teachers and principals used forms of tests, such as the ones employed by the Survey commission, to determine how much progress is being made from year to year, and how much the weaker pupils are gaining, and the like, then the tests would be regarded as means of really helping the teachers to solve their problems. Then, too, both the teachers and the pupils would be glad to have the measure applied.

## CHAPTER X

### THE SUPERVISION OF INSTRUCTION

**T**HE efficiency of a teaching corps depends not only upon the professional preparation which the teachers may have had for their work, but also upon the adequacy of the supervisory corps with whom they work. The Survey commission studied carefully the present situation with respect to supervision by holding conferences with the Superintendent of Schools, the primary supervisor, the supervisors of special subjects, and with the principals of schools. Some member of the commission spent from one to four hours with each of the supervisors mentioned above. In some cases, as many as three members of the commission held conferences with the same supervisory officer. In addition to these conferences much light was thrown upon the problem by a careful survey of the courses of study in use, and by means of conferences with teachers with respect to their needs and concerning their contact with the supervisory officers.

It is the chief business of the supervisory corps in any school system to continue the training which teachers may have had in preparation for their work. A teaching corps which is standing still can never be considered satisfactory, from a professional standpoint. Just as the doctor or lawyer must constantly keep in touch with the best work done in his profession, so the teacher, to be efficient, must be kept in touch with educational progress, and must expect to grow in teaching power from year to year. Indeed, it is safe to estimate that, under adequate supervision, the efficiency of teachers may be more than doubled after a short period of years. This is especially true, of course, of those who are young in the profession.

For convenience of discussion, the work of the supervisor may be considered under the following heads:

1. The demonstration of methods of teaching.
2. The criticism of instruction given by teachers.
3. The securing of the participation of teachers in the development of supervisory and administrative policies.
4. The measuring of the achievements of pupils.

#### DEMONSTRATIONS OF METHODS OF TEACHING

For a large majority of those who engage in teaching, the most effective means to be employed in developing right methods of teaching is to be found in the demonstration of successful methods, together with a discussion of their validity. An efficient principal of a school will often seek to strengthen the work of a teacher by teaching a class, and then, at some later time, holding a conference with the teacher she desires to help. In this way it will be possible not simply to say to the teacher, "Do as I do," but also to point out the validity of the particular method demonstrated and to discover wherein may lie the difficulty of understanding for the teacher whom the principal desires to help.

In many school systems, teachers who do excellent work are asked to teach before a number of their colleagues. After such lessons for observation are held, the teacher who does the work, and those who have observed, meet for discussion, in order that all may gain an insight and appreciation of the strength or weakness of the lesson taught under the guidance of the supervisory officer. It has been found advantageous in many school systems to have teachers visit in each other's rooms. This may prove profitable when the supervisory officer knows where to send the teacher who is to get help, and when the teacher knows that she is expected to report back, to the supervisory officer, her thought with respect to the teaching observed.

## CRITICISM OF INSTRUCTION

Supervisors may help teachers through careful and systematic criticism of their classroom teaching. A principal can often secure the confidence of the teachers with whom she works by showing appreciation of the strength which she has discovered. It is of course not enough to say that work is good, in order to capitalize the success of the teacher. The principal, or other supervisory officer, must indicate clearly the validity of the particular exercise commended in terms of principles of teaching, which are made clear to the teacher. With this foundation laid in appreciative criticism it will be possible for the supervisor to point out weaknesses in the work which has been observed, and to suggest again, in terms of fundamental principles, recommended changes in method. Many exceptionally capable teachers need the help which can be given by the supervisor who suggests, by virtue of larger experience and broader professional outlook, possibilities of achievement which had never occurred to the teacher. This suggestive criticism may often be the means of keeping alive professionally a teacher who might otherwise cease to be interested or enthusiastic in her work.

COÖPERATION OF TEACHERS IN DEVELOPING SCHOOL  
POLICIES

Successful supervisory officers are learning that it is advantageous, in so far as it is possible, to secure the participation of teachers in the development of supervisory and administrative policies. For example, in the making of the courses of study, the contribution of the teacher of the grade is just as important as that of the supervisory officer, or of the subject-matter expert. Indeed, there can be no satisfactory teaching of a course of study without that understanding and appreciation on the part of teachers which is best secured by having them contribute largely to



the preparation of these syllabi. A wise administrator constantly seeks to acquaint teachers with the meaning of records which are kept and reports which are required. Some of the best forms for recording school information, and many of the most acceptable ideas with respect to those supervisory measures, have come from interested groups of teachers. Teachers' meetings cease to be a bore when it is understood that it is in this democratic assembly that the policies which are to govern the school system are to be developed. In many systems of schools a series of meetings by grades, or groups which have special interests, have been continued over a year or more in order to develop a course of study, or to discuss administrative policies, or for professional study which looks toward the improvement of the work in the schools.

#### MEASUREMENT OF THE ACHIEVEMENTS OF PUPILS

A supervisory officer who is interested in his schools naturally attempts, from time to time, to measure the achievements of the pupils in the schools under his charge. Until very recently nearly all school systems used the term-examination as a means for making these tests. The courses of study were outlined on the basis of definite accomplishments, in definite textbooks, and then examination questions, uniform for all schools, were issued from the superintendent's office, the test being how many pupils could pass the written tests issued.

This has been the method used in Butte, the questions issued being either the Montana state questions, or questions approved by the City Superintendent of Schools. These examinations have been attempted by all pupils, from the third to the eighth grades inclusive. One week, four times each year, or a total of one school month, has been given to these tests, and another week, also four times each year, or another school month, to preparation for the tests. Nominally one third, but actually nearly one half, as is ex-



plained in the footnote on page 121, of a child's chances for promotion from grade to grade has depended upon the ability to pass these quarterly written tests. The inevitable result of this method of school supervision has been that the teachers have come to teach textbooks, rather than children, and one of the measures of efficiency in the teaching corps has come to be the ability to prepare children for these examinations.

As a method for supervising the schools the periodical written examination is about as poor and as wasteful a method as could be devised, and the bad results of the system in Butte have been well set forth in the statistical data given in Chapter VI, showing the large number failing to pass the promotional tests and the large number of over-age children in the schools. Many of the faults in the instruction seen, as pointed out in Chapter VII, on the Quality of Instruction, are also undoubtedly due, in large part, to the system of tests which have been in use, and which have determined the aims of the instruction given.

This system of supervision is so wasteful of both the teachers' and pupils' time; the questions asked are frequently so irrelevant, and so technical; the effect of the tests in shaping the instruction are so bad; the general failure of the plan, as shown by the tests given (see Chapter IX), to insure efficient instruction, is so evident; and the results on the promotion of children are so disastrous; that the Survey commission recommend the abandonment of these uniform written tests, and the substitution, not only of a more personal form of school supervision, but also of a more reliable basis for the promotion of pupils. If a course of study based on topics, rather than pages in textbooks, were outlined for the schools; if the supervision provided were to direct attention more to the improvement in the methods of instruction on the part of teachers, and the methods of supervision on the part of principals; and if promotion from grade to grade were based on the combined judgment of the teacher and principal concerned,—

the educational results obtained in the Butte schools certainly would be materially improved.

#### STANDARD TESTS OF INSTRUCTION

The recommendation that the type of examination test heretofore used be abandoned does not mean that the Survey commission feel that tests for purposes of supervision should not, from time to time, be made. On the contrary, the Survey commission distinctly recommend the opposite. The tests that they recommend, however, in subjects in which they may be used, are the so-called "standard tests," such as were used by the commission itself in testing the work of the schools, and as are explained in some detail in Chapter IX. By the use of these standard efficiency tests,—tests designed to test individual growth, increase in accomplishment, reasoning ability, and increased personal power on the part of pupils, rather than the memorization of knowledge which may or may not be of any real value,—an efficient addition to the work of supervision in Butte may be introduced.

Careful students of education are beginning to appreciate the inadequacy of the method of examination of pupils which has been common in the past. With the development of scales and units of measurement which enable us more accurately to evaluate the achievements of pupils, the work of the supervisory officer has increased in significance. When such careful measurement of the results of instruction are made, and when teachers have been trained to appreciate the validity of such measures, it is relatively simple for the supervisory officer to point out with precision the strength or weakness of a particular teacher. Where the right attitude exists between teachers and supervisors, this careful analysis of the results of the teacher's work quite commonly results in a change of emphasis, or a redistribution of time or effort on the part of the teacher.

## TEACHER AND SUPERVISOR

In the survey of the problem of supervision in the Butte school system, the commission was impressed with the spirit of coöperation which was evident as between principals and teachers. They found many teachers who were eager to improve their work, and principals who were most anxious to help them. In every case, they felt that the principals were endeavoring faithfully to perform their duties, as they understood them. The recommendations of the commission have to do mainly with the necessity for broader training for members of the supervisory corps, in order that they may better understand the work which their position involves. The Survey commission, impressed as they have been by the need of better professional training for the school principals, specifically recommend that their tenure in the school system be made to depend upon the securing of more adequate training than they now possess. In order not to work any undue hardship upon them, it is recommended that they be given an extra month's salary, and that they be required, during the next three years, either to attend two summer schools, which may be organized by the Board of School Trustees in Butte, or that they attend two university summer sessions, and take courses, devoted to the problems of supervision, which meet with the approval of the Superintendent of Schools.

We feel that we cannot commend too strongly, nor too often, the action of the Board of School Trustees in bringing to the city system a primary supervisor of broad experience and superior professional training. The commission believe that strong and continuous support of this officer in her work for the improvement of the teaching corps will bring large returns in increased efficiency for the school system.

There is need too, we believe, for thoroughgoing support of the Superintendent of Schools by the Board of Trustees in any constructive policy he may desire to carry

out. He should be considered the executive officer of the board, and should carry out the policies which the board has approved. His special professional training and equipment should be acknowledged, and he should have the power to select teachers, secure textbooks and supplies, place teachers in the system, bring about the organization of courses of study, determine the organization of classes and schools, and direct the collection of data which may prove significant for the management and control of the school system, subject only to the approval or veto of the Board of School Trustees. He must, if his administration is to prove efficient, be held responsible also for the success or failure of his administration, and it is essential that he should be given power commensurate with this responsibility, and then be expected to use it, and use it intelligently.

Throughout the system, the success of supervision will depend upon the loyalty of teachers to their principals, and of principals to the general supervisory and administrative officers of the system. There can never be established any adequate system of supervision or administration unless members of the Board of School Trustees constantly refer any matter of unrest or dispute to the supervisory officer most concerned, rather than take action, either to support or condemn the one who is unhappy in her work. It is recommended that the rules of the board be so amended (if amendment is necessary) as to preclude an appeal to the board or to any individual member of that body, until any matter of dissatisfaction or dispute has been considered and acted upon by the proper supervisory or administrative officer.

## CHAPTER XI

### ADAPTATION OF THE SCHOOLS TO COMMUNITY NEEDS

#### (1) THE NEW TYPES OF INSTRUCTION

**I**T is the function of public education to provide opportunities for training to all members of the community who are willing or who can be persuaded to secure more education. The older idea that the public school system was concerned only with the training of boys and girls from the ages of 6 to 14 and 16 has, in the more progressive communities, been replaced by a conception of education which is large enough to include children of less than 6 years of age, and all of the members of the community beyond compulsory school age who can be interested in further education. We are beginning to understand that those ideals and purposes which are to be significant in the lives of men and women, are more apt to be developed after the period devoted to elementary-school training than during the eight years devoted to this work. We know that in every city there are men and women who are eager to learn and whose further education will constitute one of the greatest assets of the community. The organization of our schools which has placed the age of entrance at 6 is accidental, rather than carefully planned in terms of the development of children and the social consideration of the environment in which they live.

#### KINDERGARTENS

Reference has already been made in Chapter VIII, on the Courses of Study, to the necessity for establishing

kindergartens in all of the elementary schools. Without seeming unduly critical of the environment in which most of the children of Butte live, it may be remarked that there are few cities in the United States in which the environment of children is as unfavorable as that found here. If children could have as much as three hours a day, from 4 to 6 years of age, with skilled kindergarten teachers, it seems to members of the commission that much of that joy which is the prerogative of childhood would be introduced into the lives of many of the little children of Butte, who are, even when home conditions are most favorable, happiest in their play and work with other children, under sympathetic direction.

Students of education recognize that the kindergarten does much for the social training of children, that the play activities which are to be found there have a very definite educative value, and that the free intercourse among children and teachers does much to lay the foundation for later intellectual development. It is in the kindergarten that many children get their first appreciation of order and system. They acquire habits of industry and courtesy, traits which are certainly valuable outside of school and for preparation for their later school work. The folklore, music, and art which are found in every good kindergarten lay the foundation for growth in power of appreciation of those things which are most worth while in literature, music, and the fine arts. Kindergarten teachers are always anxious concerning the physical welfare of children, and it is during the kindergarten period, not infrequently, that corrective treatment can be suggested, to the very great advantage of the children concerned, in terms of their later development. In an investigation made in an Eastern city during the past year it was discovered that, of two groups of children from the same economic and social groups, those who had attended kindergartens made better progress and did more satisfactory work in the eight years of their elementary-school courses than those who had not.



SPECIAL CLASSES FOR SPECIAL GROUPS

Very good provision has been made in the local school system for special work and custodial care for boys who are delinquent. The commission feel that similar provisions should also be made for girls.

In their visits to the schools the members of the Survey commission were impressed by the number of backward or mentally deficient children who were present in the regular elementary-school classes. These children interfere greatly with the work of the teacher of normal children and profit very little from the attempt which they make to do the regular school work. The commission recommends that special classes, of not more than fifteen pupils each, and taught by teachers who have secured special training, be organized in all of the larger buildings, for the sake of giving a type of instruction suited to the needs of backward or mentally deficient children.

In the first grades of many of the schools a large number of children are to be found who do not speak English when they enter school. If kindergartens are established, this difficulty may be largely overcome. Until that time, it is recommended that special classes be organized for non-English-speaking children, in order that their progress may be made more rapid, and for the sake of giving those who already speak English the larger opportunity which would come from working in groups, equal in ability with themselves with respect to the command of the English language.

The commission have not been able to make a careful investigation concerning the number of deaf, blind, crippled, tubercular, or otherwise physically unfortunate children in the city. Most cities of the size of Butte have found it necessary to organize special instruction for children thus handicapped. It is customary when the numbers are small and the distance to be traveled great, to provide transportation for these unfortunate children. This problem should be carefully investigated, and children in these groups,



whether they are now in school or not, should be given such education as they are capable of enjoying. Care should be taken to provide, whenever possible, such a training as will enable them to become self-supporting.

In every school system there are also to be found those children who are especially capable. Provision is being made, in more progressive school systems, to conserve the ability represented by these children of unusual capability by providing opportunities, either for rapid advancement through the several grades of the school system, or for more intensive and thoroughgoing study of the subjects commonly taught. The commission are of the opinion that this matter should be carefully considered by principals and teachers in the Butte school system, and they are persuaded that in many cases children should be allowed to skip a half-year or more, from time to time, in order to put them in classes where they can work up to the maximum of their capacity. The recommendation contained in another part of this report for intermediate schools (see Chapter VIII) would, if carried out, do much to provide opportunity for these super-normal children in the upper grades of the schools.

#### NIGHT SCHOOLS

The investment of any city in public school buildings and equipment can bring the maximum of return only when the buildings are used up to the maximum of their capacity, not only during the period from nine o'clock in the morning until four in the afternoon, but also during the later afternoon and evening hours, and possibly during the period before nine o'clock in the morning. In a city like Butte, in which the working day covers the whole of the twenty-four hours, it seems especially worth while to consider the possibility of utilizing the school equipment during more than six or seven hours a day. There must be in this city many boys and girls who leave school before completing either

an elementary or a high school course, who would, if opportunity were offered, continue some phases of their work in classes which might be organized, as has already been suggested, either before regular school hours in the morning, during late afternoon hours, or during the period commonly occupied by night schools. These young people should be encouraged to continue some sort of intellectual work, or if this type of activity makes little appeal, there should be given, in the school buildings, the opportunity for social intercourse, and they should have provided for them entertainment which will safeguard them and the community from the evil influences of the street and of those commercial amusement enterprises which are all too common in our cities. Wherever the school plant has been opened to this group of people a large demand has been found for work in manual training, the commercial subjects, instruction in science, cooking and sewing, besides a considerable group who are anxious to take up those studies regularly offered in the high school.

#### CLASSES FOR THOSE WHO DO NOT SPEAK ENGLISH

Provision should be made for the teaching of English to youth or adults in the community, who are unable to speak or to read the English language. In the organization of such classes, it is not necessary to have special classes or teachers for each foreign tongue represented. A well-qualified teacher may have in her class as many as fifteen different nationalities, and yet prove most efficient in teaching English to all of them. The community's obligation to educate those who cannot speak English is as real, from the standpoint of the safeguarding of our democratic institutions, as it is to educate all children between six and sixteen. Classes for the teaching of English to those speaking other languages should be opened in at least three or four school buildings, and should continue from seventy-five to one hundred sessions each year.

## THE WIDER USE OF THE SCHOOL PLANT

School buildings should be opened as meeting places for groups of girls or women who may be interested in hygiene and home nursing, in music, or in physical training. For the older boys and girls who have left school, or for the men and women of the community, public lectures, musical entertainments and social gatherings, debating or literary clubs, and the like, under proper restrictions, should be provided by the Board of Trustees, and should be encouraged in the school buildings.

The community as a whole is interested in the education of little children, of youth, and of adults, and a wise organization of educational activities in any city must take account of the special needs and interests of the several groups to be found, without any age specification. The wider use of the school plant by those who are unable to, or are unwilling to, attend the regular sessions of the elementary or high school will result in a larger return for the community from the investment already made in buildings and equipment. The purpose of public education cannot be realized until the school system throws open its doors and provides instruction, suited to their needs, for all the people of the community.

## (2) CARE FOR THE PHYSICAL WELFARE OF THE CHILDREN

## FACILITIES FOR PLAY

In their examination of the schools of Butte the members of the Survey commission have been deeply impressed by the need of very much greater attention to the physical welfare of the children in the schools. The play activities of the children seemed to be given but little chance for expression, in most of the schools, and the general absence of adequate playgrounds or playground facilities was noticeable. As is pointed out elsewhere in this report (Chapter III), larger playgrounds, a better location of the

school buildings, and a supply of playground apparatus for each of the schools should be provided. The educational value of play is too often underestimated by both teachers and adults. In a community such as Butte much ought to be made of play, both for educational and physical reasons.

#### PHYSICAL CONDITION OF THE CHILDREN

The members of the Survey commission were also impressed, as they visited the schools, by the urgent need for some form of physical examination and direction for the schools of the city. The number of children who were sitting in seats too small or too large for them; the number who showed unmistakably that they were poorly nourished, and in poor physical condition; the number of mouth breathers; the number with defective teeth; the large number with defective eyesight, and the few provided with glasses,—these and other evidences of the need of some competent physical direction, coupled with a follow-up system capable of advising and securing results, were impressive facts to the members of the Survey commission. So impressive were they that the members of the Survey commission feel that they would not be doing their duty if they did not strongly urge upon the Board of School Trustees the necessity for the appointment of a competent person to direct health and physical welfare work in the schools, and to oversee the health instruction in the schools; and also the appointment of at least two school nurses, to co-operate with the director of the health and physical work in the schools, and to follow up the work by securing the coöperation of the parents in the homes.

#### PROBABLE PHYSICAL CONDITIONS

From careful studies made in hundreds of cities in the United States, and from the published results of the studies of millions of school children in the United States, Europe,

Canada, and Australia, very good estimates of the number of defective children in any community can now be made. Based on these studies we can safely say that, of the approximately 7,500 children enrolled in the Butte schools, not far from

- 12 per cent. (900) are poorly nourished or anæmic;
- 60 per cent. (4,500) have seriously defective teeth;
- 20 per cent. (1,500) have or have had obstructed nasal breathing, or enlarged tonsils;
- 10 per cent. (750) have enlarged cervical glands, many of which are tuberculous;
- 20 per cent. (1,500) have been infected at least once with tuberculosis, many of whom probably will die of the disease;
- 12 per cent. (900) have defective vision serious enough to require correction by glasses, with which very few seem to be provided;
- 5 per cent. (375) have seriously defective hearing;
- 2 per cent. (150) have organic heart disease;
- 6 per cent. (450) are "nervous," or predisposed to some form of nervous disorder;
- 1 per cent. (75) are so mentally backward that their intelligence will never go beyond that which is normal for the twelve-year-old child;
- 15 to 20 per cent. (1,125 to 1,500) sleep in a bedroom with no window open;
- 50 per cent. (3,750) are not supplied with the kind of food which young children should have, if proper growth and mental development are to be expected.

The above are more probably under rather than over estimates, as the percentages given will be exceeded in good American residence cities. The figures given are sufficient to indicate at least some of the physical needs of Butte. The work of the schools can never reach a high plane of community usefulness until some intelligent attention is given to these defective children. It is a waste

of time and money to pay a teacher \$95 a month to try to impart instruction to a child who is physically incapable of absorbing 25 per cent. of the instruction provided. The child fails to make progress, retards the progress of other children by absorbing an undue proportion of the teacher's time, fails of promotion, and is headed toward a failure in life's work. Statistical studies have shown that an unduly large proportion of criminals and prostitutes are recruited from this class of defective children. The very large amount of over-age and retarded pupils found in the Butte schools (see Chapter VI) is no doubt traceable to the absolute lack of any system of health supervision in the schools.

#### TYPES OF HEALTH SUPERVISION

There are two main types of health supervision now found in the school systems of the United States. The first is the so-called "medical inspection," which is often carried on by local physicians who devote a few hours a week to the detection and control of contagious diseases. This represents the usual beginnings of health service in the schools. In nearly all cases it is merely an extension of the functions of the local board of health. The cost averages, over the United States, about thirteen cents per year per pupil.

The second type of school health service has now passed far beyond the "medical inspection" in which the work began, and aims not only to control contagious diseases, but also to discover every form of physical defectiveness which may exist among the pupils, and, by means of an efficient follow-up service, to secure the coöperation of the home in preventing and curing defects. This type of school health service also includes in its scope the physical training and playground work, the supervision of the hygiene instruction in the schools, home education in matters of hygiene, sanitary inspection and supervision of the school-houses, and other similar lines of health and sanitary serv-



ice. The cost is often as high as fifty cents per pupil per year, but it is worth many times the other type of health service. It is, however, a much more difficult type to find a physician capable of handling.

#### THE SCHOOL NURSE

At least two school nurses should be supplied for follow-up work. Without an adequate follow-up system only a small fraction of the notices of defects sent home to the parents will ever be acted upon. Judging by the experience of other cities, probably not more than from 10 to 12 per cent. would be acted on in Butte. With a school nurse follow-up system experience elsewhere shows that from 85 to 90 per cent. of the cases reported secure attention. The nurse goes into the homes of the children, notes the conditions which surround them there, and by a tactful presentation of needs, which women can do so much better than men, accomplishes results with mothers which cannot otherwise be had. School nurses also very often establish somewhat permanent advisory relations with the homes they have once visited.

School nurses can also make many of the routine school inspections as well as can the school physician, and they are frequently of more service to the teachers. Eye diseases, skin diseases, the beginning of illness, the detection of head lice, and the early recognition of physical defects can be as well handled by the school nurse as by the school physician. Another advantage of school nurses is that they do not arouse so much professional jealousy as do regular physicians.

#### THE TEACHER AND HEALTH SUPERVISION

Any plan for health supervision which does not secure the coöperation of the teachers in the school system probably will prove a failure. The more prominent the child-



welfare and preventive aspects of the work, the more the teachers must be enlisted in the work if it is to succeed. Teachers, who have the children under their charge, are usually very willing to coöperate, if they only understand what it is they are expected to do. An important part of the work of a health supervisor is the education of the teachers so that they may render the proper coöperative assistance to both the school physician and the school nurse. Though usually quite blind to physical defects at first, teachers soon, with a little training, become quite adept in detecting many of the common defects of childhood.

#### INSTRUCTION IN HYGIENE AND PLAY SUPERVISION

Another place where the right kind of school physician can render valuable service is in supervising the health instruction and physical training work of the schools. To the members of the Survey commission both these lines of work seemed to be in need of more careful and more intelligent direction. Of directed play, in a large number of the schools, there seemed to be little or none. The work in health instruction, it was felt, could also be materially improved.

## CHAPTER XII

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

IT is not possible to summarize adequately the results of the Survey in a few pages. The conclusions which have been reached and the recommendations which are made depend, in every instance, upon observations which are recorded or upon data which were collected, and which appear in the tables to be found in the report. In order for anyone to understand the conclusions which are reached and the recommendations which are made, it will be necessary to read the entire report. To this end, the Survey commission recommend that at least five thousand copies of this report be printed, as soon as is possible, in order that all interested citizens may have a chance to study carefully the findings of the Survey commission. It may not be out of place to suggest that all who read the conclusions which follow withhold judgment as to the validity of the findings of the commission, and of the recommendations which are made, until it is possible to examine carefully the data which furnish the basis for these conclusions and recommendations.

#### THE ADMINISTRATION OF SCHOOLS

A careful study of the law under which the school district has been organized makes it clear that the Board of School Trustees is vested with large authority in the control of public education. The commission recommend that there be a clear differentiation between the legislative functions exercised by the Board of School Trustees, and the executive powers vested by them in the Superintendent of Schools and the School Clerk. There can never be any

adequate administration of schools without the placing of large responsibility upon executive officers, chosen by the Board of School Trustees, and this responsibility can never be adequately met except when the board vests in the Superintendent of Schools authority commensurate with his responsibility.

#### SELECTION, TRAINING, TENURE, AND SALARIES OF TEACHERS

Most of the teachers who are now at work in the elementary schools of Butte have had inadequate professional training. Only 22 elementary-school teachers out of 181 reported have had a minimum of two years of normal-school or other professional training beyond their high-school course. Only 6 of the 16 principals of the elementary schools have had this minimum of professional training. The commission most strongly recommend that hereafter no teacher be employed in the school system who has not had a four years' high-school course and two years of professional training. The commission recommend that, in order that these teachers may realize their greatest efficiency, a summer school be opened in Butte for the professional training of teachers; that all teachers be required to attend this school, or some other recognized normal or university summer school; and that they be paid an additional month's salary for such attendance. A similar recommendation is made with respect to elementary-school principals. After a careful study of the salaries paid in other Western cities, the commission have recommended that the maximum salary to be paid to elementary-school teachers and to principals be increased, but that this maximum salary be made dependent, in every case, upon the securing of additional professional training.

#### SCHOOL BUILDINGS AND EQUIPMENT

The reports which have recently been made by the school architect, in coöperation with the county health offi-

cer, and by the city health officer, were carefully examined by the Survey commission. They were found to be in substantial agreement. The members of the commission then made a careful study of the buildings on their own account. Their findings and recommendations may be briefly summarized as follows:

1. In the past the school sites which have been bought have been too small, and the buildings not infrequently undesirably located.

2. The type of building constructed is not satisfactory. In almost every case the lighting is from at least two sides, with wide pillars between the windows. In modern schoolhouse construction lighting is always arranged from one side only, with very narrow pillars between the windows.

3. There has been a tendency to construct too many small buildings, which are uneconomical and unsatisfactory from the standpoint of providing proper educational facilities. It is doubtful whether it is ever economical to construct a building with fewer than from 16 to 18 rooms. This is especially necessary if proper provision is to be made for the manual and household arts, and for special classes for children who need special attention. These larger buildings should contain an auditorium, in order that they may be used outside of regular school hours as a community center.

4. The buildings now in use can be best adapted to the needs of the community by segregating, in the present high-school plant, the children of the seventh and eighth grades and the first year of the high school, as an intermediate school, in order to make room for kindergartens, special classes, and for work in industrial and household arts, as suggested above. It seems to the members of the commission that some of the buildings, notably the Greeley School, are so inadequate and unhygienic that they should be demolished rather than be repaired and added to. It is the judgment of the commission that it would be unfor-

tunate to add to the present high-school building. A new high-school site should be found, and a new building, containing a gymnasium and auditorium, as well as the ordinary laboratories and classrooms, should be constructed.

5. The janitorial service is faithful, but not always intelligent. It is recommended that the clerk of the Board of School Trustees, in coöperation with the Superintendent of Schools, be given larger authority with respect to the work of the janitors, and that they be given, under his direction, such training as will insure more satisfactory service.

#### CENSUS, RECORDS, AND REPORTS

The present school census has been taken as provided by the state law. The commission recommend a more satisfactory system of recording the census data, and means of keeping the census file up to date, and the collecting of such additional information as will make the census more significant, from the standpoint of its possible educational use. The forms for amending the census are given in the body of the report. Recommendations are also made with respect to the methods of reporting by principals to attendance officers and to the Superintendent, and concerning the report of the attendance officers to the Superintendent. Some suggestions are given concerning the possibility of simplifying the present system of school records.

#### COSTS AND FINANCIAL RECORDS

The commission found it difficult, from the data which are available, either in the school offices or in the report of the United States Census, to make any adequate calculation as to the cost of education in Butte, compared with other cities. Such approximate comparisons as it seemed advisable to make are found in a table of comparative cost, which is given in the body of the report. In consultation with the School Clerk, and with his hearty coöperation and

approval, a better system of school accounting has been recommended, and a form for such is included in the report. With this more adequate system of accounts it will be possible for the Board of School Trustees to know concerning the cost of any particular school, or type of educational activity. With this information at hand it will be possible for the board to adopt such policies as promise a maximum of economy and efficiency.

#### THE CLASSIFICATION AND PROGRESS OF PUPILS

The facts with respect to the classification and progress of children in the school system were collected from all schools of the district. These data show clearly that there are a very large number of children in the Butte schools who are too old for the grade in which they are found. A careful examination of the tables which appear in this report will show that one out of every two children in the school system is over-age for his grade. Many of these over-age children are one to two years over-age, but almost two hundred are three or more years over-age for their grade. In the body of the report will be found a discussion of the causes of this retardation. It is more important, in this connection, to note that the commission recommend that special classes be established for those who are backward or mentally deficient. These special classes will prove helpful not only in making it possible to give proper training to those who are backward or deficient, but also in removing from regular classes children who interfere with the proper teaching of those who are normal. The commission also recommend the establishment of a summer elementary school, in order that many children who would otherwise fail of promotion may make normal progress in the school system.

A careful study of promotion and non-promotion in the school system, the data being recorded in tables in the body of the report, shows an extraordinarily large number of



non-promotions. These non-promotions seem to the members of the Survey commission to be due to the fact that promotion is based almost wholly upon the ability of children to recall great numbers of facts, rather than upon their capacity to undertake the work of the next grade. A reorganization of the courses of study and a change in the type of examination given is most urgently recommended, in order that the amount of non-promotions may be decreased.

From the data collected concerning the size of elementary-school classes, the commission have discovered that conditions are most favorable in Butte. Indeed, they seem almost ideal as compared with other cities in the United States. The relatively small class which is common in the school system suggests the possibility of adequate instruction for all children, and of regular advancement for all who are systematic in attendance, provided the recommendations made above concerning special classes and for changes in the courses of study and examination systems are carried out. It was also discovered that the size of recitation sections in the high school was small, and that it would be possible to increase, by as much as 50 per cent., the attendance upon the high school, in many of the subjects taught, without increasing the present teaching corps, provided an adequate plant were available.

### THE QUALITY OF INSTRUCTION

In the body of the report will be found a discussion of the criteria which seem to the members of the commission fundamental in any discussion of class teaching. In the light of these criteria, the commission have found that the teaching in the Butte schools is, in general, good with respect to drill work. They are of the opinion, both from the standpoint of their observations and from the tests given to children, that the work involving thinking has been neglected. This seems to be due, in considerable measure,



to the fact that the type of examination required has led to a cramming of facts rather than to an insistence on the solving of problems by pupils. There is need for better understanding upon the part of the teachers of the importance of lessons whose end-point is to be found in appreciation of literature, art, and music. The technique involved in this kind of teaching seems not to be well understood by the teachers of the school system.

The commission were most favorably impressed by the relationship of good will and accord which seems to exist between teachers and pupils throughout the school system. In the opinion of the commission, the teachers employed in the Butte schools are, with few exceptions, women of good ability, who are anxious to do their best work for the children. They believe, however, that these teachers are not now realizing anything like their full possibilities, and that much greater efficiency in teaching may be expected to result from careful supervision and from more adequate professional training.

### COURSES OF STUDY

As has already been suggested, the courses of study need to be carefully revised. There is at present entirely too much emphasis upon formal drill work and the remembering of facts which are recorded in books. It is the primary purpose of education to develop power of independent thought upon the part of children, rather than to cram them with facts. Whenever a course of study or an examination system emphasizes the importance of remembering, rather than the possible growth in power of thinking and of appreciation, teachers invariably limit their work to the preparation of children for these factual tests. It is the opinion of the commission that the courses of study need to be improved by introducing kindergartens, by providing more adequate work in nature study and elementary science, by increasing the time devoted to the manual and

household arts, and by laying greater stress upon literature, music, and drawing.

It is also suggested in the body of the report that there would be great advantage in organizing an intermediate school for children who have completed the sixth grade. This school would permit of some degree of specialization during the three-years' course, and would in all probability not only afford better educational opportunities for those who remain in school, but would also increase the number of those who stay for nine years of school work.

#### THE ACHIEVEMENTS OF PUPILS

One of the most important parts of the work of the Survey was the measurement of the achievements of pupils in the school system. Standard tests in spelling, arithmetic, penmanship, and composition were given. It was possible by using these tests to compare the results achieved in Butte with those which are secured in other school systems. In spelling, in the fundamental operations of arithmetic (addition, subtraction, multiplication, and division), and in penmanship, the results secured in Butte were as good or better than those found in other school systems. This is exactly what would have been expected by one who knew of the emphasis placed upon drill work in the school system. The results in the reasoning tests in arithmetic and in English composition indicated a very decided weakness in these fields of work. The commission venture to suggest that it is only when emphasis is placed upon thinking and upon the development of the individuality and self-expression of children, rather than upon formal drills and fact-getting, that satisfactory results can be expected in reasoning or in expression of thought.

#### THE SUPERVISION OF INSTRUCTION

The Board of School Trustees are to be strongly commended for their action in securing the services of a woman

of broad training and experience for the position of primary supervisor. In the judgment of the members of the commission much of the success of any school system depends upon the quality of the supervision exercised by the Superintendent and the general and special supervisors. Even the best of teachers, possessed of the most adequate professional training, need the help and inspiration which come from the especially capable people who should be placed in supervisory positions, for the sake of demonstrating superior methods of work, of criticizing the classroom procedure, of measuring the success of a teacher's work by the accomplishment of the children taught, and of securing the coöperation of all teachers in the development of the policies which characterize either the whole school system or some particular building or other division of it.

In the work of supervision the principal's office should be of very great importance. Those who now hold these offices in Butte are, in the opinion of the Survey commission, eager to fulfill their obligation to teachers and to pupils. They need, however, better and broader conceptions of their work, and to this end it has been recommended that they be required to secure, in summer sessions, more adequate professional training.

#### THE ADAPTATION OF SCHOOLS TO COMMUNITY NEEDS

The schools of Butte have, in the past, concerned themselves chiefly with the instruction of children of elementary- and high-school age, and during those hours which are commonly recognized as constituting the school day. The schools have offered, for the most part, a single program of work. The commission recommend:

1. The organization of kindergartens.
2. The establishment of special classes for those who are backward or deficient and for non-English-speaking children.

3. The wider use of the school plant, including elementary- and high-school work in classes to be opened, either before regular school hours in the morning, during the late afternoon, or at night.

4. That much greater opportunity for play and recreation be provided, both within the buildings, wherever that is possible, and by the purchase and equipment of playgrounds.

5. That the physical welfare of school children be provided for through the establishment of adequate health supervision, involving medical inspection and visiting nurses.

In conclusion, the Survey commission wish to emphasize, for all who may read these conclusions, the necessity of studying carefully the whole report. In the several chapters presented will be found the records of observations made and the tabulation of data which were collected. It is only when the reader has available these records of observation and these collected data that he can hope to judge fairly concerning the conclusions of the report, or to be reasonable and open-minded in his acceptance or rejection of the recommendations which we have made.



## Appendices





## APPENDIX A

### THE INITIATION AND AUTHORIZATION OF THE SURVEY

**I**N an extended communication to the Board of Trustees under date of April 27, 1914, Superintendent of Schools George F. Downer proposed that the Board of Trustees authorize an expert survey of the schools of District No. 1. This recommendation was considered by the Committee on Teachers and School Management, which on the same date offered for the consideration of the board a body of resolutions on various subjects, closing with the following paragraph:

(6) That in order to create the most favorable conditions possible for increasing the efficiency of the public schools of this district, the board immediately investigate the plausibility of having made here such an expert examination of the schools of the district as has been suggested by the Superintendent in the attached letter. Such surveys have recently been made in Portland, Oregon, and Boise, Idaho, and if such a survey is made of the Butte schools, we hereby resolve to publish the results in full and to abide by the recommendations of the experts, wherever possible.

The resolutions were signed by C. R. Hopkins, P. S. Harrington, and M. J. Rozsa, members of the Teachers and School Management Committee, and were passed, unanimously, by the board, all trustees being present.

At its next meeting the following resolution was introduced by the Laws, Rules, and Regulations Committee:

*Resolved*, That a survey be made of the schools of School District No. One, by Dr. George D. Strayer of Teachers College, Columbia University, New York City; Dr. Ellwood Cubberley, head of the Department of Education, Leland Stanford University, and Dr. Frank P. Bachman of New York City, and two assistants. Such survey to commence as soon as practicable, and there is hereby appropriated and set aside from the General Fund of the said School District the sum of Four Thousand Dollars (\$4,000) to pay the expense of said survey and for the cost of a report from the said persons to the Board of Education as to the conditions of the said schools.

C. R. HOPKINS,  
LOWNDES MAURY.

On roll call Trustees E. D. Elderkin, P. S. Harrington, C. R. Hopkins, E. F. Maginn, H. L. Maury, and M. J. Rozsa voted Aye. Trustee C. R. Wallace voted No.

## APPENDIX B

### BLANK FORMS USED IN COLLECTING DATA

#### EDUCATION AND EXPERIENCE OF THE TEACHERS IN THE BUTTE PUBLIC SCHOOLS

1. Name .....
2. Permanent home address.....
3. Position ..... in ..... School.
4. Please indicate in the appropriate spaces the amount of schooling you had *before entering the service at Butte*:

	Where? City and State	Number of Full Years	Parts of Years (Number of Months)	Summer Sessions (Number of Weeks)	Year of Graduation
High School					
Normal School or Training School					
College or University					

5. Please indicate in the appropriate spaces below the amount of schooling you have had *since entering the service at Butte*:

	Where? City and State	Number of Full Years	Parts of Years (Number of Months)	Summer Sessions (Number of Weeks)	Year of Graduation
Normal School or Training School					
College or University					

## 6. Experience:

- a. Date of entering service in Butte.....(Month).....(Year)
- b. Number of years of service in schools of Butte:
  - (1) As teacher . . . . .years
  - (2) As supervisor, or special teacher . . . . .years
  - (3) As principal . . . . .years
  - (4) Total . . . . .years
- c. Number of years of service in schools outside of Butte:
  - (1) In Montana . . . . .years
  - (2) Elsewhere . . . . .years
  - (3) Total . . . . .years
- d. Total number of years of experience in teaching, supervision, etc. . . . .years



## Sheet II b

## DIRECTIONS AND DEFINITIONS FOR REPORT ON ENROLLMENT, FAILURES, ETC.

1. Where a teacher has two grades, for example, a 1 B and a 1 A, she will put the record of each grade on a separate line.

2. Total enrollment for the semester (Item 2) includes (a) the original enrollment *plus* (b) all pupils received during the semester on transfer from other rooms of the same building and from other public schools of Butte *minus* (c) all pupils lost during the semester by transfer to other rooms of the same building and to other public schools of Butte.

3. Under Item 3 (Number Dropped) are to be included all pupils who have been dropped and who have *not returned*; *that is*, who have not been readmitted to school.

4. Under Item 6, where there were no failures in a particular study, indicate this fact by "o."

5. Checks which will show whether or not this blank is correctly filled out:

(a) Item 2 (Total Enrollment) = Item 3 (Number Dropped) plus Item 4 (Number in Class at End of Semester).

(b) Item 3 (Number Dropped) = Item 2 (Total Enrollment) minus Item 4 (Number in Class at End of Semester).

(c) Item 4 (Number in Class at End of Semester) = Item 2 (Total Enrollment) minus Item 3 (Number Dropped).

(d) The sum of a and b of Item 5 (Number in Class at End of Semester) = Item 4 (Number in Class at End of Semester).

6. After the blanks are filled out by the several teachers, the principal will assemble on a like blank, beginning with the highest grade—the 8 A—the report for the school as a whole, and will send her report along with those of her several teachers to the Superintendent's office, by Thursday afternoon, May 21.



## BUTTE PUBLIC SCHOOLS

## DIRECTIONS AND INSTRUCTIONS FOR BLANK ON SIZE OF CLASSES

1. The data called for in this blank on Size of Classes will be taken from the Semester Summary.

2. Each principal will fill out the blank and return the same to the Superintendent's office, Monday afternoon, May 25.

3. The different grades are designated: First Year, Second Year, etc. First Year includes 1 B and 1 A; Second Year, 2 B and 2 A pupils, etc.

4. Where a teacher instructs both a group of 1 B and 1 A pupils, these 1 A and 1 B pupils together are to be counted as *one class* and recorded as a class in the *First Year*, etc.

5. Where a teacher instructs, for example, a group of 3 B and a group of 4 B pupils, or any similar groups of pupils, the *two groups* are to be counted as *one class* and the *class* is to be *recorded* as belonging to the *year of the highest group*. In the illustration, the class would be recorded as belonging to the Fourth Year.

6. The "Total Number of Classes in Each Grade" equals the sum of the "Total Number of Classes" in each grade in question.

7. The "Total Average Belonging of All Classes in Each Grade" equals the sum of the "Total Average Belonging" of all the classes in the grade in question of the several sizes.





## Sheet IV b

## DIRECTIONS AND DEFINITIONS FOR REPORT ON AGES OF SCHOOL CHILDREN

## Table 1:

1. Total enrollment includes the original enrollment *plus* all pupils received on transfer from other rooms of the same building and from other public schools of Butte *minus* all pupils lost by transfer.
2. When a teacher has two grades, for example, a 1 B and a 1 A, the *record of each grade* should be put on a *separate line*.

## Table 2:

1. The *ages* of the children are to be computed as of September 1, 1913, and are to be taken from the Admission, Discharge, and Promotion Card.
2. A child 6 years and 5 months old September 1, 1913, should be recorded as 6 up to  $6\frac{1}{2}$ ; similarly, a child 6 years and 11 months old September 1, 1913, should be recorded as  $6\frac{1}{2}$  up to 7, etc.
3. *Care* should be exercised to record all children of the same grade on the *same line*.
4. The number of children given in Table 2, as belonging to a particular grade and the ages of whom are indicated on a particular line, should correspond with the *number of children* given for the same grade under Total Enrollment in Table 1.





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SCHOOL DISTRICT No.

For the Month of

14)





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